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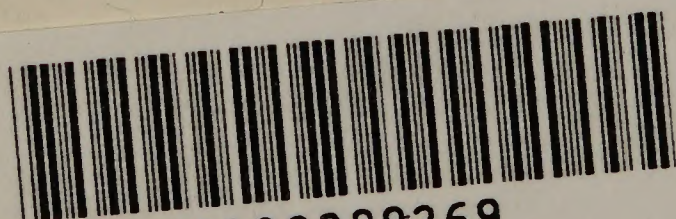
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THE DUBLIN
QUARTERLY JOURNAL

OF

MEDICAL SCIENCE;

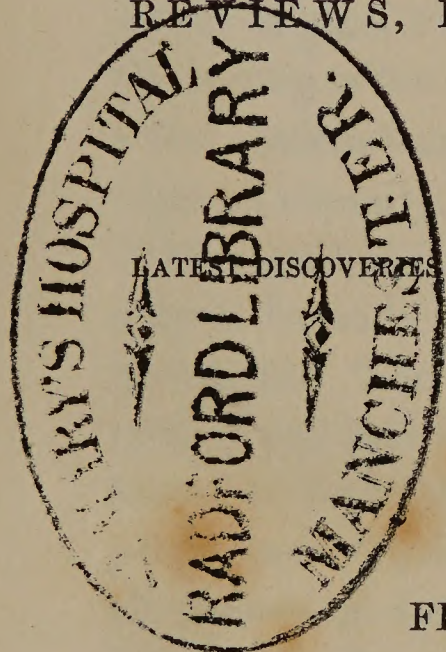
CONSISTING OF

ORIGINAL COMMUNICATIONS,

REVIEWS, RETROSPECTS, AND REPORTS,

INCLUDING THE

LATEST DISCOVERIES IN MEDICINE, SURGERY, AND THE COLLATERAL SCIENCES.



VOL. V.

FEBRUARY AND MAY, 1848.

DUBLIN:

HODGES AND SMITH, GRAFTON-STREET.

LONDON: LONGMAN AND CO.; SIMPKIN AND CO.; W. S. ORR AND CO.

EDINBURGH: MACLACHLAN, STEWART, AND CO.; SUTHERLAND

AND KNOX. GLASGOW: DAVID CHAMBERS.

1848.

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DUBLIN:
PRINTED AT THE UNIVERSITY PRESS,
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THE EDITOR'S PREFACE.

Two years having passed since we addressed our friends, supporters, and subscribers, upon the issue of the first Number of our New Series, a sufficient time has now elapsed, both for testing the question, as to whether Ireland can support a Quarterly Medical Periodical, and for allowing our subscribers to judge whether we have redeemed the pledge made to them in our original Preface and Prospectus. We beg leave, upon the issuing of the first Number of the Fifth Volume, to address a few observations to our readers; of some import to us in our editorial capacity, and to them as supporters of this Periodical. With regard to its success we have only to say, that it has, not only in Ireland, but in England, far exceeded our utmost expectations. The causes to which we can attribute this success of our periodical, we believe to be the purely practical nature of the information which it has afforded,—the tone of professional dignity which it has upheld, and the absence of all theoretical speculations, or empirical innovations, from its pages. For the majority of professional readers in these countries we believe the form of a Miscellany, in which the amount of original practical matter predominates, while no class of medical literature is neglected, is that best adapted.

As to how far we have redeemed the promises held out in our Prospectus, our readers are the best judges. Our present Retrospect, which enumerates the contents of the eight Numbers already published, is the best testimony upon the subject(a).

(a) See Advertising Sheet, p. 23.

In quantity, the average number of sheets in each Journal exceeds that which we originally promised.

Among the Original Communications will be found essays and papers from some of the most distinguished physicians and surgeons in the United Kingdom ; and this department has been more copiously embellished with first-class illustrations than that in any other practical medical periodical in Europe, during the same period.

Our Reviews and Bibliographical Notices may, we think, be taken, not only as full exponents of the current medical literature of the last two years, but as specimens of professional writing, and fair, honest criticism, equal to those which have appeared in any of our contemporaries. It may seem egotistical thus to attempt "to grace our cause" by speaking of ourselves, but we are constrained to allude to this subject, because the matter has been forced upon us by some expressions and opinions, which have appeared in the Farewell Address published by the Editor of a late Quarterly Periodical, who has stated that no review is of value which is not paid for, and we know that he paid for his by the sheet(a). We do not know what the taste for medical literature may be among the class of gentlemen who formed his *corps de revue*; but we do know that we can, and always have received from men of the first standing in the profession, and the highest literary ability in Ireland, "*gratuitous contributions*" in this and other departments of our Journal; indeed, had it not been so, the question of our success might have been problematical. We have paid, however,—not, indeed, by the line, page, or sheet, but simply by the article.

In our third department, that consisting of Reports, Retrospects, and Scientific Intelligence, we feel that we have more than fulfilled our promises ; the importance of the subjects discussed, the value of the Reports themselves, and the characters of the gentlemen by whom they were written, all prove

(a) An honourable exception was made in favour of the Edinburgh Medical and Surgical Journal.

this. We have published, with considerable trouble, the Reports and Proceedings of the Dublin Pathological Society, in classified systems, as far as they have been furnished to us by the officers of that Society; and the cases which have appeared, from time to time, in this section of our Periodical, afford not the least valuable and practical portion of the Journal.

We have likewise devoted a considerable portion of our space to the Obituaries of such of our brethren as have died since the commencement of our labours; and to the Biographies of those distinguished physicians and surgeons in Ireland, who have advanced our literature, and by their writings, and in their lives, extended science, or contributed to spread the reputation of our country during the past century: and these memoirs have frequently been accompanied with portraits. In producing these memoirs and obituary notices, in which we have enlisted the sympathies of our countrymen, we feel that we are advancing our national as well as our professional literature.

Considerable excitement has prevailed, owing to the introduction of Dr. Graves's Letter, on the subject of the Central Board of Health, in our last Number. We have been accused of having broken the rule which we made with regard to the non-introduction of medical politics into our Periodical. Such is, we again assert, our rule, and such was the rule observed by our predecessors in the former Series of this Journal. Yet, as our readers must be aware, it was on certain occasions broken through, and matters of that description were at times introduced. We still hold by our rule, with a right, however, of making an exception upon *urgent and pressing occasions*; and we believe that no occasion, so urgent and pressing, has ever occurred in this country, as that upon which we ventured, *for the benefit of the profession at large*, to make that exception. In this place we have no desire again to enter into the subject; but, that our conduct has met with the approval of the great body of the profession, both here and in England, the recorded

opinions of our contemporary Periodicals, and the various meetings which were held by several bodies of our provincial supporters, and the sentiments which were there expressed upon the subject, are a sufficient guarantee. It is true that, since the publication of Dr. Graves's Letter, a few gentlemen in Dublin have withdrawn their subscriptions; but, nevertheless, we can point, with no small degree of satisfaction, to our present List of Subscribers, which (notwithstanding this defalcation, and the loss of many of our friends and supporters by death, emigration, and other causes, to which the present unhappy condition of our country has conduced) is very much greater than that which we published at the commencement of last year.

There is but one other subject on which we would occupy the reader's attention, and that is the present distressed condition in which the families of our professional brethren have been left. Charity, it is said, begins at home; and we know of no period in which the benevolent assistance of the profession has ever been more required than the present; and we know of no public channel through which that assistance can be better applied than "The Medical Benevolent Fund." We beg to direct the attention of our brethren to the observations on this subject at page 287, and also to the statement of the Committee for the management of this fund, which will be found in our Advertising Sheet.

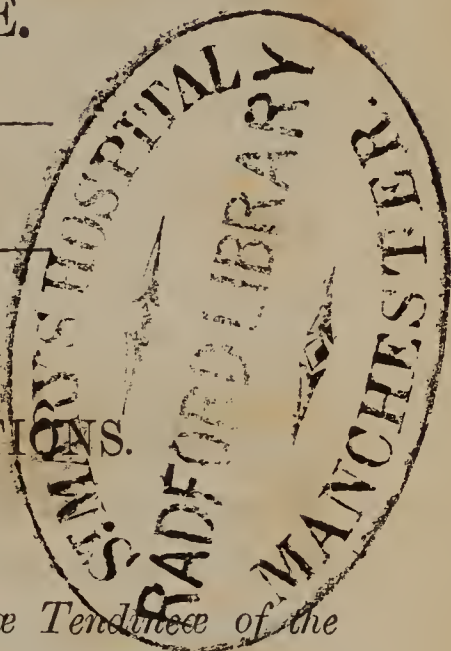
THE DUBLIN
QUARTERLY JOURNAL
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MEDICAL SCIENCE.

FEBRUARY 1, 1848.

PART I.
ORIGINAL COMMUNICATIONS.

ART. I.—*A Case of Rupture of the Chordæ Tendineæ of the Tricuspid Valve of the Heart, with Remarks.* By ROBERT BENTLEY TODD, M. D., F. R. S., Fellow of the College of Physicians, London, Physician to King's College Hospital, and Professor of Physiology in King's College, Honorary Member of the Pathological Society of Dublin, &c. &c.

INJURY and disease affect the valves of the right side of the heart less frequently than those of the left. The progress of our knowledge, derived from *post mortem* investigation, however, contradicts the opinions formerly held that diseased states of the right side of the heart, especially as affecting the valves, are of extremely rare occurrence. My experience has long since led me to the opinion that it is an error to suppose that the right side of the heart has any peculiar exemption from disease, as Bichat affirmed, and his followers repeated. The truth of this matter seems to be, that in the chronic mor-



bid changes to which the valves are liable, due to deposits of abnormal matters, whether interstitial or superficial, the right side is *later* than the left, and that it is not uncommon to find both sides similarly affected, the valves of the right side presenting an earlier stage of the deposit than those of the left; but that *acute* affections of the endocardium are of extremely rare occurrence in the right ventricle or auricle. The greater force exerted by the left ventricle of the heart, estimated by Valentin at one-fiftieth of the weight of the body, while that of the right ventricle is only one-hundredth part of the same, and the greater quantity of muscle in the former than in the latter, estimated by the same physiologist to be in the left ventricle double that of the right, denote a greater activity of nutrition on the one side than on the other, and, therefore, a greater liability to abnormal formations.

Rupture of the chordæ tendineæ is a rare lesion on either side of the heart, but particularly so on the right side. Nor is this to be wondered at if we reflect on the conditions which would be likely to produce such a lesion. It is probable that in every instance the immediate cause would be an extreme tension of the tendon or tendons; this could only take place during the diastolic distension of the ventricle when the auriculo-ventricular valves would be stretched by the contained blood. If there be any considerable obstacle to the escape of the blood from the ventricle, this tension would be prolonged, and perhaps increased, and, under the pressure thence resulting, the chordæ tendineæ would give way. A state of general debility, or the existence of disease of the tendinous cords, would, of course, be favourable to the rupture. A morbid state of the tendinous cords frequently accompanies that of the valves. This is much more common on the left side than on the right, hence, probably, the much greater frequency of this lesion on the left side, because the cords are more frequently in a state favourable to the production of a solution of continuity by violence.

The following case affords the most complete example I

have met with of ruptured tendinous cords of the tricuspid valve.

Edward Ingram, aged 21, was admitted into King's College Hospital on the evening of the 8th of March, 1847, in the following condition:

He was extremely pallid, anæmic, with general anasarca, the scrotum was enormously distended, and the abdominal cavity was filled with water. There were great enlargement and induration of the liver: this organ descended considerably, fully two inches below the margin of the ribs. The anasarca was so considerable in the neck that the condition of the jugular veins could not be ascertained. The patient was much troubled with a frequent hacking cough; his respiration was rapid; and he was unable to lie down.

He gave the following history of himself:

In November, 1844, he was stabbed in the right side, a little below the mamma, in a riot with some of his companions, on which occasion he was greatly alarmed; he lost a good deal of blood from the stab, and, as it was succeeded by pleurisy in the situation of the wound, he lost more blood by several venesections which were practised for the cure of the inflammation of the pleura. The pleuritic attack was followed by a state of very obstinate costiveness, which was overcome by the use of enemata, and a considerable quantity of fetid clotted blood was passed by stool.

Four weeks after the receipt of the injury he vomited a large quantity of blood after having been extremely faint for some hours before, and he also passed some by stool; the bleedings both by stool and vomiting have occurred frequently since, with intervals of about a fortnight, during which there was a cessation of hæmorrhage. For two months before his admission there had been no appearance of blood in his stools, and three months have elapsed since he vomited blood.

During the last month dropsy had come on rapidly, beginning in the face and upper extremities. The face and neck

were very much swollen at the time of his admission, so that no sign of veins could be detected in the neck. The breathing was rapid, 40 in a minute; *in front*, the respiratory murmur was loud and puerile; *posteriorly*, feeble and crepitant, in consequence, no doubt, of an œdematous state of the lungs. He was supported in a semi-recumbent position by pillows. The impulse of the heart was considerable, and could be seen and felt over a great extent of surface, accompanied by a thrill very sensible to the hand, both at the apex and at the base. Percussion was dull over a greatly increased surface in the præcordial region, and the heart's beats were seen and felt in the scrobiculus cordis. On auscultation, a bellows sound was heard very loud at the apex of the heart, very distinct also over the sternum. A second bellows sound, of different tone and less intense, was audible at the base of the heart, and in the course of the aorta. Both sounds were systolic. The second sound of the heart was natural, but feeble; pulse small, thready, and very compressible. Urine scanty, clear, and free from albumen; the addition of liquor potassæ occasioned an abundant phosphatic precipitate, which was dissolved by nitric acid.

The patient survived his admission into the hospital only five days, during the greater part of which time his breathing was so distressing and the dropsy so great as to render any complete auscultation of the chest impossible.

There was a combination of circumstances in this case which rendered it extremely difficult to form a satisfactory and precise diagnosis. I, therefore, did not attempt one. The patient was so weak that frequent or minute examinations of him were impossible. I found, however, sufficient evidence of enlarged heart, in the extent of the dulness, and the increased force and extent of the impulse; and I came to the conclusion that the enlargement was due to hypertrophy and dilatation of both ventricles; the dilated condition of the right ventricle was sufficiently manifest from the extension of the heart into the region of the scrobiculus, where its

beats could be distinctly seen and felt, and from the great extent of the dropsy, which is so apt to occur when there is dilatation of the right ventricle. The veins of the neck having been obscured by the anasarca in that region, the existence of venous regurgitation could not be satisfactorily ascertained.

The bellows murmur, so loud over the point of the heart, indicated imperfection of one or other of the auriculo-ventricular valves; probably of that of the left side, since it is more liable to a morbid state. It did not, however, escape my notice that this sound was very distinct over the sternum, and that it possibly might be developed in the tricuspid orifice. But the rare occurrence of any lesion in that orifice, sufficient to develop bellows murmur, rendered such a diagnosis improbable, while the enlargement of the right ventricle, and probably of the left, and the extension of the former to the apex of the heart, would materially conduce to the propagation of sound generated in the mitral orifice, to the right side. The murmur in the aortic orifice was not necessarily indicative of any morbid lesion of that orifice, as the state of extreme anæmia which the patient exhibited was sufficient to give rise to it. Both bellows sounds were, no doubt, much increased in intensity by the anæmic state. I constantly find that mitral murmurs become greatly augmented in anæmia; and when the anæmic state goes off, the bellows murmur becomes greatly diminished. I may remark, however, that a bellows sound will not occur in the mitral orifice from anæmia, as we know it often does in the aortic orifice, simply because the pallid and watery state of the blood cannot destroy the perfection of the mitral valves. The existence of mitral bellows murmur is, in my judgment, unequivocal evidence of mitral imperfection, but a state of anæmia may cause an increase of the intensity of the murmur.

The patient was treated with diuretics and mild stimulants. The dropsy, however, increased rapidly, and, his breathing be-

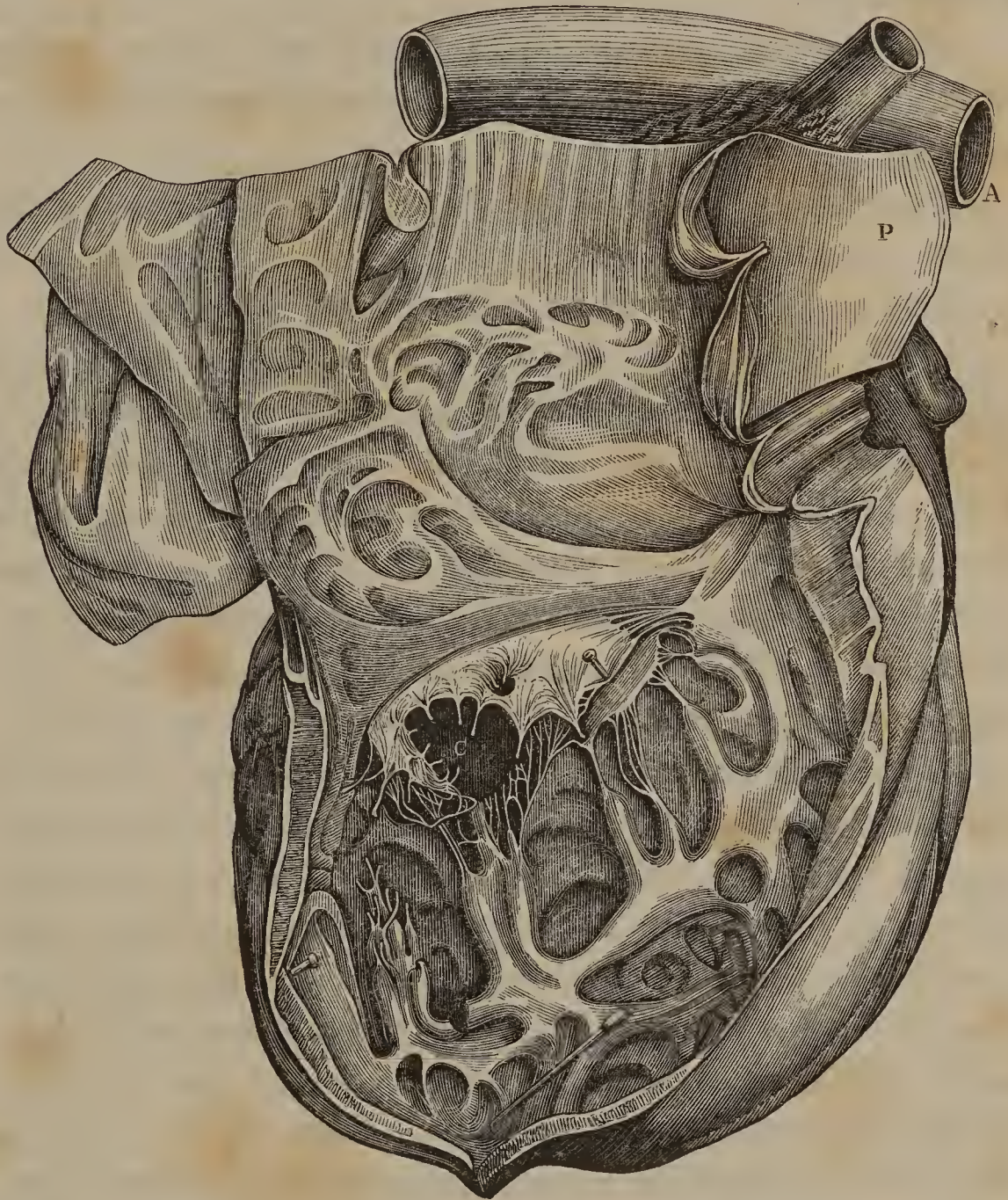
coming very laborious, he died early on the morning of the 14th, the sixth day after his admission into the hospital.

Post Mortem Examination.—The inspection of the body took place about twelve hours after death. The body was extremely œdematous; both pleuræ, and the peritonæum were full of fluid, effused, as regards that in the pleura, during the last forty-eight hours. The lungs did not collapse, they were in a highly œdematous state. The heart presented considerable hypertrophy, with dilatation of the right ventricle and auricle; the left cavities were rather larger than the normal size; the valves of the left side were perfectly healthy, as were also those of the pulmonary artery; not so, however, the tricuspid valve, the anterior and largest division of which, that which separates the infundibular from the auricular portion of the ventricle, lay loose in the cavity of the ventricle; it retained its connexion with the heart only at its base, towards the auriculo-ventricular fibrous zone, inasmuch as all the chordæ tendineæ belonging to it were torn across at unequal distances, so as to give the free margin of the valve a ragged appearance; the muscoli papillares, from which the chordæ tendineæ originally sprung, and to which portions of them still adhered, were distinctly shrunk and wasted; the margin of the valve was not thickened, nor could any morbid change be detected in any part of its structure, nor in that of the broken tendinous chords: the ends of these cords, both of the portions adherent to the valve, and of those attached to the muscoli papillares, were swollen into little knobs, as represented in the annexed wood-cut, calling to mind the swollen ends of the nerves of stumps after amputation.

The aorta and its branches were unusually small, and their coats much attenuated, so that they resembled in structure the pulmonary artery, which, on the other hand, partook of the dilatation and hypertrophy of the right cavities.

The atrophied condition of the muscoli papillares in the right ventricle, which are the regulators of the tricuspid valve, furnishes interesting evidence of the long existence of the rup-

ture. Its date was probably to be referred to the time when the patient received the blow on his chest, a period of two



years and a half(a). And the rounded and swollen extremities of the tendons indicated an effort at repair, which wanted for

(a) *Description of the Engraving.*—The heart is represented with the right ventricle laid open by an incision carried along the right side of the septum cordis, through the pulmonary artery, and along the right edge of the heart. The flap, consisting of the anterior wall of the ventricle, is raised up, so as to expose completely the cavity of the ventricle and its car-næ columnæ; the outer and anterior muscoli papillares are distinctly atrophied, and all the other forms of columnæ carneæ are hypertrophied. A, a portion of the aorta; P, the pulmonary artery; C, tricuspid orifice, with the broken and swollen extremities of the tendinous cords hanging into it.

its success only the complete and continued apposition of the broken extremities, which, in such an organ, would, of course, be impossible.

The mucous membrane of the stomach was extremely pale and thin, and here and there soft; there was no ulceration or cicatrix.

There was nothing worthy of special notice in any of the other organs.

This case presents several points worthy of notice.

1. *The Nature of the Lesion.*—This appears to have been purely the result of some violent and undue tension to which the tendinous cords were subjected. The valves and cords were, undoubtedly, perfectly healthy, and there could not have been any morbid process preceding the rupture, as there was no sign whatever of any alteration in their tissue. What was the condition which led to this rupture? It could have been only one of great distension of the valves, caused by an unduly prolonged repletion of the ventricle, which, again, could only have existed where obstacles had for a corresponding period opposed the escape of the blood from it. Now we know that in expiration, or during the suspension of the respiratory acts, whether the lungs be filled with air or not, the circulation through them is retarded, the blood accumulates in the right auricle and its veins, as is shewn by the turgid state of the superficial veins of the neck and head. Such an effect is very likely to be produced by a prolonged struggle, as in wrestling, or any strong resistance to the efforts of another. In the patient's history we find it stated that he was stabbed in the right side in a scuffle: the effort connected with this scuffle, and the fright induced by the stab, would, undoubtedly, induce a degree of disturbance of respiration sufficient to impede the circulation through the right side of the heart. There seems no other cause so likely to account for the extensive rupture of the tendinous cords which took place in this case, as the tension which such a continued effort would create.

2. *The Duration of the Lesion.*—There are no facts in the history of the case, besides those which lead to the inference made in the preceding paragraph, which enable us to determine the precise date at which the rupture took place, and, therefore, the precise duration of the lesion. All that can be said upon this point is, that, as the muscoli papillares, from which the broken cords sprung, were shrunk and atrophied, there can be no doubt the duration must have been considerable. We have no means of judging of the length of time necessary to cause the degree of wasting which existed.

It may be remarked that this wasting, in connexion with the ruptured chordæ tendineæ, affords a valuable proof of the true functions of the muscoli papillares, namely, to act upon the tendinous cords, and through them upon the valve. The tendons being broken, the muscles can no longer perform their office, and they consequently waste.

3. *The Symptoms produced by the Lesion.*—The great imperfection of the tricuspid valve, which a rupture of several of its tendinous cords would produce, would not immediately give rise to such serious symptoms on the right as on the left side. The necessity for a perfect auriculo-ventricular valve is much less on the right than on the left side, for the overflow into the auricle, in the former situation, would find a free exit into the large veins with which it communicates, whereas the blood regurgitated from the left auricle would find its way into the pulmonary veins and capillary plexuses, to the great impediment of the pulmonary circulation and of the respiratory function.

John Hunter regarded the valves of the right side as less perfect than those of the left, and the late Mr. Wilkinson King assigned to the tricuspid valve the office of a safety-valve to protect the lung, under undue distension of the ventricle, from retarded or impeded respiratory acts. If Mr. King's view were correct,—and I see no strong objection to it,—it might be supposed that in health a slight regurgitation takes place, during the systole of the right ventricle, at the tricuspid orifice. This

might increase without producing any immediate serious effect, but a great regurgitation could not last long without injury, for it would necessarily create an obstacle to the flow of blood from the right auricle, and dilatation and hypertrophy of that cavity would be produced; the retardation of the venous circulation in this way would give rise to impeded arterial circulation, and the left ventricle would thus be excited to increased exertion, and would gradually experience dilatation and hypertrophy; the impediment at the left side would soon react upon the pulmonary circulation, and give rise to dilatation and hypertrophy of the right ventricle.

The sequence of effects due to unnatural regurgitation through the tricuspid orifice would be, first, dilatation and hypertrophy of the right auricle; secondly, congestion of the systemic veins; thirdly, impeded flow into the arteries; fourthly, hypertrophy of the left ventricle and auricle; and lastly, impeded pulmonary circulation and consequent hypertrophy and dilatation of the right ventricle.

It admits of question whether the great amount of hypertrophy and dilatation which the right ventricle exhibited was due chiefly to this cause, namely, the impediment at the left side caused by venous congestion. If this were so we might justly expect to find a greater amount of hypertrophy and dilatation on the left than on the right side. Such was not the case in this instance; on the contrary, the report of the inspection states that the increase in the left cavity was trifling. Is there any cause, then, capable of inducing dilatation and hypertrophy of the right ventricle, which could come into operation early, and before the left cavities would have encountered any obstacle? I believe that such a cause did exist, in the dyspnœa induced by the disturbance in the circulation through the right side, and the consequent imperfect supply of blood to the lungs; the dyspnœa thus induced giving rise to more or less of obstruction to the pulmonary circulation: and the result of this, as far as regards the heart, would be hypertrophy and

dilatation of the right ventricle to an extent proportionate to the obstacle to be overcome.

The sequence of the symptoms developed by such a lesion as I have described, would undoubtedly, be: 1. dyspnœa; 2. venous congestion, regurgitation in the cervical and other veins; 3. the usual effect of great venous regurgitation,—dropsy, with congestion of viscera, especially of the liver.

This patient had a symptom which is not of very common occurrence in heart disease, and which, on a superficial view, would seem to have no connexion with the cardiac malady. The symptom to which I allude was *hæmatemesis*, for which the *post mortem* examination unfolded no cause in ulceration or other breach of the mucous surface. I cannot but think that this symptom was intimately connected with the peculiar lesion which occurred in this case. We have seen that the liver was greatly enlarged, and enormously congested; this congestion is easily explained by reference to the great regurgitation at the tricuspid orifice so near to the hepatic veins: and we know that hepatic congestion is extremely apt to give rise to gastric hæmorrhage.

If I shall again meet with a cardiac affection, accompanied with frequent attacks of hæmatemesis, I shall look out for a lesion giving rise to great regurgitation at the tricuspid orifice.

It is highly probable that, up to a certain point, these gastric hæmorrhages had a favourable influence in relieving the hepatic congestion, just as we often find that topical bleeding over the region of the liver gives great relief to the congestion of that organ.

I have searched through several of the best authors for an analogous case to this; but although cases exist of rupture of the tendinous cords of the right side, I have failed to discover one in which the rupture seemed to arise from violence, and was unattended by any previous morbid condition of the valves or of the cords themselves.

ART. II.—*Observations on the late Epidemic Fever.* By JOSEPH LALOR, M.D., Physician to the Union Fever Hospital and Workhouse, Kilkenny.

THE prevailing epidemic in Kilkenny, for the last three years, presented such a general uniformity of character, that it must be considered as one and the same fever throughout. From the predominance of gastric and enteric symptoms, it might not inaptly be called gastric or gastro-enteric fever; and the very general accompaniment of an eruption of purple spots, in the cases which occurred during the last two years, places it in the class of maculated fevers.

Gastric fever became prevalent in this locality about the summer of 1844, and, at the same time, our well-known maculated typhus, which for many years previously had been so common that it might have been considered endemic, became comparatively rare, and has since continued so.

The invasion of this gastric fever was generally very sudden, and often severe; usually setting in with rigor, and sometimes delirium or confusion of intellect, followed immediately by nausea, vomiting, diarrhœa, thirst, anorexia, head-ach, and pain of back and joints. The aspect was at first sunken, the skin cold, and the pulse small, feeble, or irregular; but reaction speedily set in, and brought with it a quick, sharp pulse, hot skin, foul tongue, and disordered secretions. The thirst, nausea, and other gastric symptoms, were the most prominent and most persistent symptoms, being often very intense. Various unpleasant sensations, and tenderness on pressure were felt over the region of the stomach, and the tongue was very generally coated with a peculiar, thick, creamy fur. Disturbance of the intellect was rare, and I never observed typhoidal stupor in the first stage of gastric fever, before the summer of 1845. Up to this period, also, no form of cutaneous eruption occurred in gastric fever. After a continuance of the forego-

ing symptoms for a period varying from three to eight days, the fever went off usually very abruptly. The symptoms were comparatively mild, and death very rare in this, the first stage, which commonly ended in convalescence, but to be followed very generally, in from two days to a week, by relapse. This relapse, in a great number of instances, could not have been the result of any error in diet or otherwise, and occurred in spite of every precaution and the trial of various remedies for its prevention. It seems worthy of some consideration, whether a recurrence of fever, which was the ordinary course of the disease, should be considered as a relapse in the proper sense of the term, or whether it might not more correctly be looked on as a subsequent stage, or consecutive fever. In conformity with this view, the first convalescence should be considered as the stage of intermission. The analogy between intermittent fever and cholera, and many of the phenomena of gastric fever, strongly favour this presumption.

The second febrile attack, whether it be considered as a relapse or otherwise, assumed one of the four following forms:

1. Pyrexia, attended by severe general pains, and terminating favourably in a period varying from three days to a week, and not unfrequently in the same abrupt manner as the first stage. The pains were sometimes confined to the joints like rheumatism, sometimes they followed the course of the nerves like neuralgia, but they were very often referred to the muscles or skin, and compared to the sense of soreness left after a beating.

2. Pyrexia, with distressing nausea and vomiting, usually of a grass-green fluid, and often accompanied by extreme prostration, with sunken countenance, cold, clammy surface and extremities, and slow, small, irregular pulse. Notwithstanding a train of symptoms apparently portending such imminent danger, recovery followed in about the same period of time as in the preceding form of relapse.

3. A combination of the two preceding forms of fever.

4. The fourth form of relapse was a species of low protracted gastro-enteric fever, attended with nausea, thirst, irregular state of the bowels, great depression of spirits, variable pulse, white dyspeptic, or red beef-steak tongue, and general *malaise*. The termination was usually favourable, unless in the old or debilitated, to whom it was often fatal; and low typhoid symptoms, with profuse bronchitis, diarrhœa, or dysentery, usually preceded death: but no cutaneous eruption appeared.

In the summer of 1845 a purpuric eruption began to form a frequent accompaniment of gastric fever, which, however, retained the same general character as to other circumstances. This eruption came out at the crisis of the first fever, and a second crop at any subsequent period was very rare. The symptoms previous and subsequent to its appearance on the skin were similar to those of the gastric fever already described, and which pursued very nearly the same course, whether the cutaneous eruption appeared or not. The pulse was in general quicker and sharper at first, and subsequently more rapid, and more like a hæmorrhagic pulse, in the eruptive than in the non-eruptive form of gastric fever. The eruption was often preceded and foreboded by constrictive pain of the chest, with or without a bronchial mucous rale; very hurried and anxious respiration; weak, fluttering action of the heart; and vibratory thrilling of the carotids. Thick, creamy coating of the tongue, collapse, and sunken countenance, were common in the eruptive fever, the two latter at the invasion or crisis; but similar symptoms occurred sufficiently often when no eruption succeeded, and they have been absent or not distinctly marked so frequently in eruptive cases, that they afforded no certain foreknowledge as to whether the eruption would follow or not. After the summer of 1845 the invasion of fever became more sudden and severe, and its critical termination more abrupt and well marked.

A symptom so curious, and so full of interest, as the purpuric eruption, attracted my notice on its first appearance,

which I could not fail to observe, as I had always been in the habit of looking for the maculated eruption of typhus in fever cases. The occurrence of purple spots soon became so frequent, that I had notes of forty-two of the most remarkable cases, that occurred in my wards in the workhouse alone, before the month of September, 1846; and so early as the 1st of December, 1845, I stated, in reply to a circular addressed to me by the Commissioners appointed by Government, with reference to the apprehended scarcity from the failure of the potato crop, that the prevalence of purpura was a peculiar feature of disease at that time in this locality. There can be no doubt that, in Kilkenny at least, the commencement of this *gastro-purpuric* fever is to be referred to the summer of 1845.

In the spring of 1846, diarrhœa and dysentery prevailed extensively, either as idiopathic affections, or as complications or sequelæ of the reigning fever. In the month of October, 1846, my opportunities of observing fever became much extended, in consequence of the duty of providing for the treatment of extern fever cases, from all parts of the Kilkenny union, having been thrown on the Board of Guardians, owing to the reduction of the county and city fever hospitals from want of funds. It is from this latter date that *gastro-purpuric* fever has ravaged Kilkenny, in common with many other parts of Ireland, as an epidemic of perhaps unparalleled extent and severity; and, from the commencement of last spring, the eruption of purple spots has excited very general observation. Since last October, also, the purpuric eruption, relapses, and bowel complaints, have become more frequent, and of a much more dangerous character; and jaundice, putrid diarrhœa, general dropsy, and gangrene at the extremities of the mucous canals, have occurred, for the first time, in decided connexion with *gastro-purpuric* fever. The essential characters of the reigning fever have not, however, been radically changed; and, notwithstanding the addition of the foregoing and some other important complications, the fever on which they are engrafted

is still of the same gastric or gastro-enteric type as that which prevailed three years ago, and very many cases of which still occur unmixed with any eruption.

The amount of the purple eruption by which this fever was characterized, varied; the number of spots in some cases not being more than six, whilst in others they covered the body profusely. Whether the number of spots was few or many, an abatement of the febrile symptoms occurred on their appearance, in nearly every instance. The few exceptions were: when the fever was kept up by some complication, as pneumonia or diarrhœa; when the type of the fever was low, or extreme debility existed; when the first stage had been more than usually prostrative; and when the eruption was very copious, dark coloured, and complicated with large blotches. The appearance of such an eruption was sometimes immediately followed by collapse and death.

The order of frequency in which the skin of the different parts of the body was the seat of the eruption, was pretty much as follows: the upper part of the chest, the inguinal regions, the back of the neck and throat, the abdomen, the flexures of the elbow-joints, the arms, fore-arms, legs, thighs, lumbar region, and lower part of chest. The eruption rarely appeared on the forehead, eyelids, conjunctiva, or cheeks. I have sometimes seen distinct round spots on the conjunctiva, similar to those on the skin, but oftener an irregular ecchymosis or blood-stain. The spots were of different sizes, varying from the smallest dot, like that caused by the prick of a needle, to the usual size, about that of a split pea, or to blotches and patches of greater magnitude. I have seen the whole posterior surface of both thighs and legs, from the buttocks down to the heels, occupied by one continuous blood-stain. On the first appearance of the spots they were usually of a purplish colour, but occasionally they were bright red, and in some cases of the colour of venous blood. The first day after their eruption they generally began to fade, and

they had entirely disappeared, in many instances, in one, two, three, or four days: whilst a few hours sometimes sufficed for their evanescence, especially when a copious perspiration broke out. If the eruption was of a blackish colour, which generally foreboded great present danger, or consecutive fever of a low bad form, or putrid diarrhœa, the eruption continued little or not all changed for several days, if the patient lived; or it assumed a dark brown mahogany colour; or a fresh crop of spots or blotches broke out; but a second crop was a very rare occurrence.

When the eruption was fading away favourably, its colour often became so indistinct that it resembled the mottled form of typhoid maculæ. Whilst it was recent no such mistake could be made unless by a very inattentive observer; and at any period of the purpuric eruption, the persistence of the spots after pressure by the finger was sufficient to distinguish them from the spots of typhus. The central puncture of flea-bites is not always easy of recognition, and it was sometimes very difficult to distinguish these marks from that form of purpura in which the spots are small. But it generally happened that some at least of the purpuric spots were of a larger size than flea-bites ever attain, and even when only one spot of this size appeared it was sufficient for all the ordinary purposes of diagnosis. In cases where the purpuric eruption disappeared slowly, and low, putrid symptoms set in, the larger blotches, if present, gradually changed their colour to a streaked yellow, blue, and green discoloration, or portions of skin when pressed upon underwent similar changes of colour; the surface of the skin, when blistered or irritated by sinapisms, turpentine, &c., frequently became blood-stained, but sloughs rarely followed. I have seldom witnessed such an ecchymosis of the skin as occurs after a blow. Large blobs, and smaller bullæ, full of bloody or greenish serum, sometimes appeared, and in one case a single enormous blob full of reddish serum separated the cuticle from the wrist to the elbow of the right fore-arm, and

was still progressing when death stopped its course. The smaller bullæ, on breaking, sometimes exposed a deep excavated ulcer.

In relapses, patches of urticaria sometimes occurred, and the accompanying fever was usually marked by great sensorial disturbance, very rapid and shabby pulse, and brown, dry tongue; and the rash itself, being less bright in colour, less elevated, and in smaller patches than usually occur in urticaria, closely resembled the measly form of typhoid maculæ. A case with such a combination of symptoms might readily be mistaken for one of eleven or fourteen day typhus, until the subsidence of all febrile symptoms, in twenty-four or forty-eight hours, would correct the error. A close examination of the eruption was necessary in such cases, to prevent mistakes, especially in hospital, where typhus fever so frequently occurred during convalescence. The detection of the little white characteristic spots of nettle-rash removed all doubt.

Another remarkable feature in the fever of last winter was the frequent occurrence of gangrene at the extremities of the mucous canals. Thus we met with *cancrum oris* in adults as well as children, gangrene of the upper lip, of the anus, and of the pudendum. This peculiarity concurs with all the other symptoms in exhibiting the special tendency of this fever to affect the muco-cutaneous system; and the cases of sphacelus which occurred cannot be supposed to have arisen from a general gangrenous tendency, as bed-sores were exceedingly rare, and in no instance have I seen gangrene of the toes or fingers.

The treatment of this, as of most other fevers, seemed best conducted on the expectant system, meeting symptoms as they arose. I cannot recommend any remedy as specific; and, considering the almost invariable tendency to recovery from the first febrile attack, we might almost rest satisfied with palliative treatment. But, bearing in mind the great proneness to relapse, and to consecutive bowel and pulmonary attacks, often

of a most dangerous character, more active treatment was generally demanded.

At the commencement, a gentle purgative, repeated if necessary, was found useful when the invasion of the disease was followed by excitement, as was generally the case. When severe syncope, or collapse, ushered in the febrile attack, and reaction did not take place on the application of external warmth and the use of hot drinks, stimulants were sometimes required at the very onset of the disease, to be withdrawn, however, when reaction occurred. As the most salutary stimulant at all periods, and one without which all other remedies often failed, I cannot rank too highly a pure and thoroughly ventilated atmosphere.

Towards the close of the first stage, the repetition of stimulants was often indicated by the symptoms of debility and prostration which presented themselves. But I do not think that the use of stimulants was so generally or so continuously called for, or to such an extent, as in ordinary typhus fever.

Diluent drinks, and the abstraction of solid food, and of all external or internal irritants, formed the chief part of the general treatment. I have seen no benefit from diaphoretic medicines; and certainly none of a depressing nature should be used, as great and alarming collapse has sometimes followed the employment of even very small doses of tartar emetic. Inflammatory complications were most safely and successfully treated by mercury, with opium and blisters; and the apparent analogy between this disease and scurvy should not deter us, in such complications, from the use of this medicine, which acted as favourably here as in idiopathic inflammations.

The intense præcordial pain, which was present in many cases, was best relieved by sinapisms and blisters, as their application did not depress the constitutional powers; and I have sometimes seen very great depression produced by even a few leeches. The period of convalescence required even more caution, as to diet, than the convalescence from typhus

fever; and meat and broth affected the bowels injuriously, even when given in the most moderate quantities. The digestive organs of the poor, enfeebled by the prolonged want of nutritious, or even sufficient food, seemed unable to bear any of the stronger articles of diet, until gradually accustomed to their use.

In relapses the same general rules were observed as in the first stage of the fever; but stimulants were more generally called for, and had to be increased or diminished according to circumstances, of which age, constitution, and previous alimentation, were amongst the chief. In a very large proportion of the half-famished and broken-down individuals who crowded our hospitals, the liberal and long-continued use of stimulants and nutritious food seemed alone capable of saving life, which, nevertheless, they often failed to do.

The irritability of stomach, and especially the green vomit so prevalent, often baffled treatment from the first. The best and safest general remedy, at all periods of this affection, was the application of external stimulants, as sinapisms or blisters over the stomach. After the first twenty-four hours, internal remedies had a fairer chance; and of these, effervescing draughts, opium, and creasote, were the best. Stimulating emetics sometimes produced a good effect very rapidly, in cases where extreme collapse was produced by constant small vomitings, or nausea. The principal emetic I used was mustard; and in the above cases reaction often speedily followed, and the nausea or vomiting was quieted after the action of the emetic. Emetics should be avoided when drowsiness or any decided symptoms of head engagement exist. Mustard emetics had an extraordinarily good effect in cases which were admitted in a state of great collapse, with copious bronchial effusion; and emetics of ipecacuanha were very serviceable in many cases of jaundice, when the constitutional powers were not sunk so low to forbid their use. The severe pains which were present in the stage of relapse were generally removed by opiates, and especially by Dover's Powder. The delirium of the advanced

stage was best treated by blisters to the nape of the neck, and the application of cold to the head when much heat of the scalp prevailed. A form of nervous delirium, analogous to delirium tremens, with quick, small pulse, moist skin, and tolerably clean tongue, and which demands the use of opiates, stimulants, and blisters, sometimes occurred in this fever, but was more frequently met with in typhus. After a trial of a great variety of remedies, I have found none so generally useful in all forms of diarrhœa as opium by the mouth and by injection. The milder cases it rapidly checked, and many severe cases after a longer employment of it. Many individuals, apparently in a hopeless state, were so far benefited by the mitigation of the exhausting discharges from the continued use of opium, that they were enabled, with the help of a naturally vigorous constitution, to fight through a desperate struggle to final recovery. The liberal administration of stimulants was in general required when the discharges from the bowels were profuse or protracted. The peculiar anasarca consecutive on septic diarrhœa was sometimes removed by the use of the tincture of the muriate of iron and generous diet. When the diarrhœa persisted with the anasarca, opium was also given.

Mortality.—The number of deaths in the first stage was small, and a large majority of the cases of relapse, even when complicated with bowel complaints, recovered, except when putrid diarrhœa set in, in which case the recoveries were very few, and of these some subsequently died from consecutive ascites and anasarca. I do not give any tables of the mortality, from a conviction that such must be very imperfect, and lead to very erroneous conclusions. So many cases left hospital well of fever, but to be subsequently attacked at their own homes, or in the chronic wards of the workhouse, with bowel complaints, anasarca, ascites, or phthisis, that our registry of the results of fever cases presents very uncertain data on which to calculate the actual mortality from this epidemic. On the other hand, many cases, admitted for the first time to our fever wards as cases of fever, were really of such a nature as not to admit

of any correct classification : they were often persons totally broken in constitution by long-continued privation and hardship, and in the last stage of emaciation and exhaustion, but labouring under no definite disease ; sometimes they were subjects in some stage of diarrhœa, ascites, anasarca, or phthisis, attended, perhaps, with febrile symptoms. I am satisfied that the general conclusions I have given as to the mortality are correct, though wanting that show of accuracy which statistical details impart.

Post Mortem Appearances.—The most general and important group of *post mortem* appearances was exhibited by the sanguineous effusions that presented themselves beneath the surface, or in the substance of the various organs and tissues of the body. Spots and blotches similar to those on the skin were met with on every portion of the peritonæal surface, including the folds of the mesentery, on the pleura,—both costal and pulmonary,—on the mucous membrane of the stomach, the large and small intestines, the bladder, and on the surface of the liver, kidneys, and spleen. I met with spots on the arachnoid only once. They were seated under the covering of the optic thalamus, in the left lateral ventricle, and were perfectly definite in character, but only two in number. Effusions of blood were frequently found in the substance of the lungs, forming apoplectic masses, and once in the substance of the muscles.

Purpura on the internal surfaces varied in the size, shape, number, and colour of the spots, as it did on the skin. Their form was generally circular, and their size usually varied from that of a pin's point to a split pea ; but irregularly-shaped blotches, two, three, or four inches in measurement, sometimes presented themselves. On the pleura, the serous surfaces of the large and small intestines, stomach, and kidneys, middle-sized and large spots were frequently mixed, but the largest blotches were met with under the loose reflections of the peritonæum, forming there true ecchymoses, and the smaller eruption occurred on the mucous membrane of the small intestines and stomach. The mucous membrane of the bladder shewed also rather small

spots. The quantity of the internal eruption varied much, but was generally more copious the greater had been the number of spots on the skin.

When death occurred whilst the cutaneous eruption was still recent, the internal spots were equally or even more vivid in colour, and, in some instances, the latter were still visible, and well-marked, although the former had disappeared before death, or, as occasionally happened, after decease. Spots and blotches on the mucous surface of the stomach were rare, and usually of a bright red colour. The pleura and the serous and mucous surfaces of the large intestines presented the eruption most frequently and in greatest quantity. Effusions of pus, lymph, and colourless or bloody serum, into the cavities of the pleuræ, were met within connexion with purpuric eruption in the same parts. Serous and sero-sanguineous effusions occurred in the cavity of the peritonæum, under similar circumstances, but effusions of pus or lymph were never met with.

On the serous surfaces the spots never proceeded to ulceration, but on the mucous membranes, especially of the large intestines, the spots and blotches frequently ran into ulcers. Those which I have met in the stomach were usually very small, circular, set in clusters, and apparently the result of small purpuric spots about the size of pins' heads and thickly set. Ulcerations, larger in size, more irregular in shape, and more superficial, like abrasions of the mucous membrane, also presented themselves in the stomach. Both these forms of ulceration presented clean, healthy, granulating, and suppurating surfaces, and were found also in the large and small intestines, intermixed with the gangrenous, scorbutic, and fungoid ulcers next to be described, and belonging to the putrid form of diarrhœa. The latter, though having a common origin, presented a variety of appearances, depending in part on the size of the spots and their coalescence or isolation; and the purpuric spots, in which the ulcers originated, were very unequally affected, apparently from the above causes; so that the gradual

progress of ulceration, through all its different stages, could be accurately observed in a single case. The smaller spots still preserved an unbroken surface, and their original purple colour, only slightly dulled in hue. Other spots, in great number, were of a larger size than ordinary, of an uniform vivid blue colour, oval or circular, unbroken and even on the surface. In some, a small, white, elevated pustule stood in the centre, and the seat of this pustule was found occupied in other spots, farther advanced, by a depressed ulcer. In a further stage of development this central ulcer was surrounded by a whitish, concentric ring of sloughy membrane, loose and detached from the cellular tissue underneath, and a blue margin encircled this sloughy membrane.

With the gradual progress of the disease the ulcers sometimes extended beyond the original size of the purpuric spots, or various contiguous ulcers ran together, forming clean, granulating surfaces, but sometimes covered with sloughy cellular membranes and having no trace of the original blue colour remaining in either case. More frequently a narrow purple edge, or blue streaks, still marked the origin of the ulcers from the purpuric spots. Those blue gangrenous ulcers were at other times found degenerated wholly, or in part, into irregularly-shaped, exuberant masses of fungoid, flabby, mamillated granulations, sometimes encircling the whole caliber of the intestines in a continuous series, and arranged in elevated ridges above the level and near the margin of the blue ulcers, which they partially or entirely bounded. Their colour was red, or flesh colour, sometimes greenish, and they resembled the spongy granulations of scorbutic gums, and, like them, were easily scraped away with a knife. The surface exposed by their removal was perforated by innumerable small holes (as if worm-eaten), between which, smooth narrow bands intervened, the whole floor forming a finely reticulated net-work. No appearance of mucous membrane could, in general, be observed, and the cribriform floor of the granulations seemed formed of the remains of the muscular and cellular coats; but here and there

a patch of mucous membrane, studded, perhaps, with purpuric spots, was found still intact, though hidden amongst the granulations, which, springing by a narrow pedicle from the plane on which they rested, expanded like fungi, and overlapped the adjoining surfaces. The orifices of the mucous crypts or follicles were, in some instances, seated in the centre of the blue spots and ulcers, and were pointed out by a glairy mucus which flowed from them, or exuded on pressure.

Protuberant ulcers, of very irregular shape and various sizes (some four inches in one measurement), lined the whole or a large portion of the caliber of the intestines in other cases. The edges of these ulcers were raised and everted; their surface, rough and uneven, was covered with shreds of sloughy cellular membrane, of a mixed brown, blue, and yellowish colour. The caliber of the intestines was greatly encroached on by the projection of these ulcers, and the outer walls of the gut were thickened over their site.

In another form of ulceration the valvulæ conniventes of the small intestines were thickened, wrinkled, obtuse on their edges, and firm to the feel, and, with the intervening portions of intestine, were uniformly coated with a thick, scaly, or granular layer of a brown or yellow colour, as if covered with a coarse coat of varnish. This layer appeared to be an exudation from innumerable small ulcers, perforating the mucous membrane down to the vascular and muscular coats. The intact mucous membrane between the ulcers formed bands and striæ, which were dotted with minute purpuric spots of a bright colour, and so closely set as to give the appearance of an uniform redness until examined with a lens. The small intestines frequently presented contractions and intus-susceptions in young persons, and gelatinous softening of the mucous membrane of the stomach and small intestines was common at all ages. Perforations of the stomach or intestines were in no instance discovered.

The liver was always found of a normal size, often pale on the surface, but sometimes variously mottled, green, brown, red,

or yellow. At the protracted period after death (always forty-eight hours at least) when I made my *post mortem* examinations, and from the generally fluid state of the blood, this mottling was probably owing to imbibition. The substance of the liver was, in general, soft and friable. In one case of ascites, drops of curdy pus exuded from the biliary ducts of a small portion of the thin edge of the liver, and from the substance of the spleen generally. The gall-bladder frequently contained vitiated bile of different colours and degrees of consistence, very abundant, thin, and yellowish in most cases of jaundice; in cases not jaundiced it was often found scanty, thick, viscid, ropy, green, black, brown, or tarry. In one case, not jaundiced, the bile presented a greenish-black colour, and the blood of the vena cava was nearly similar in appearance. The bile, on being mixed with water, was often found exactly resembling the fluid ejected from the stomach in green vomit. In cases of jaundice all the tissues and fluids of the body were found stained yellow, after death, corresponding with similar colouring of the secretions during life, as the urine, the sputa in pneumonia and bronchitis, and the fur on the tongue. The ducts from the liver to the gall-bladder, and thence to the intestine, were always pervious.

The spleen was generally of a normal size, and firm to the feel, but was sometimes enlarged, pulpy, soft, and filled with grumous blood. The kidneys were generally normal, but were sometimes congested with venous blood, and presented purpuric spots or blotches on the surface.

The lungs were often found congested over a greater or less extent; and apoplectic effusions into their substance, from the size of a nut to an apple, were frequently observed. Œdema of the lungs, and passive and active congestions of the bronchial tubes, with serous or purulent exudation, were not infrequent. Serous effusion into the pericardium was very rare, and small in quantity, and purpuric spots were never met with on this membrane. The substance of the heart was sometimes slightly softened. In a large majority of

the *post mortem* examinations the blood was found black, thin, and fluid, or forming only grumous clots; even the left ventricle generally contained such blood, and it flowed freely from all the organs of the body when they were cut into, whether they were normal in structure or congested. In chronic cases, where a protracted illness preceded death, the tissues were generally pale, and the quantity of the blood was evidently diminished.

The brain was, in general, healthy, except in jaundiced cases, when the cerebral substance and the membranes were universally stained with bile. Slight serous sub-arachnoid effusion sometimes presented; and extensive lymph and purulent deposit coated the arachnoid, in a case in which opisthotonos and other marked symptoms of nervous lesion occurred before death.

Causation.—From the frequent concurrence of famine and fever it is reasonable to conclude that a close connexion exists between the two, and it would seem to be believed by many, that the purple spots and fatal diarrhœa of our present epidemic are specific results of famine. This at least appears to be the meaning of such names as *the Famine Fever*, and *the Famine Diarrhœa*,—terms in pretty general use. I think it would be better to avoid terms expressive of a conclusion more precise and positive than the data we possess warrant. For my own part, whilst I admit the general connexion between famine and fever, I shall not undertake to say that famine alone is the immediate or specific cause of any form of fever, and I shall content myself with the enumeration of some of the principal facts bearing on this difficult question of causation as presented in Kilkenny and its neighbourhood.

1. Gastric fever prevailed before the failure of the potato crop in 1845.

2. The purpuric eruption became prevalent about the time of this failure, but previously to the occurrence of famine.

3. This eruption did not appear with a new fever of its own, but as an addition to the previously reigning fever; and

it was a frequent accompaniment of small-pox as well as of gastric fever.

4. Purple spots have not appeared in measles, and scarcely more frequently than usual (if at all so) in maculated typhus.

5. Other diseases have not been complicated with this eruption, even in delicate and ill-fed subjects.

6. With the setting in of the general and aggravated famine in last autumn, gastro-purpuric fever became considerably more prevalent and fatal, the eruption assumed a worse character and greater frequency, dangerous symptoms and complications previously observed grew more common, and new ones set in, amongst which was putrid diarrhœa.

7. *Post mortem* examinations have shewn that putrid diarrhœa arose from profuse purpura of the intestines running into a peculiar form of gangrenous ulceration, and that less malignant forms of diarrhœa were often concurrent with a more sthenic and scantier purpuric eruption of the intestines not running into gangrene.

8. Gastro-purpuric fever was at its height, both as to malignancy and frequency, during the prevalence of cold and moist weather; and an increase of mortality and fever was invariably observed on the change of weather from dry and warm to moist and cold, and *vice versâ*. In connexion with this point the severity of last winter must not be forgotten.

9. Gastro-purpuric fever and diarrhœa were most frequent, and of the worst forms, amongst the ill-fed, ill-housed, ill-clothed,—amongst the most uncleanly, and those of weakest constitution, as females and persons near the two extremes of age, and amongst those exposed to an over-crowded and vitiated atmosphere. Bad forms of gastro-purpuric fever and of diarrhœa were rare in the opposite classes.

10. Nevertheless, gastro-purpuric fever, and less severe forms of diarrhœa than the putrid, have attacked many who were apparently placed in conditions the most opposed to their development; but such persons had been previously much exposed to the contagion of gastro-purpuric fever.

11. The eruption, diarrhœa, or other symptoms, have never assumed their malignant form in such cases, unless when the patients were exposed to a foul atmosphere, as in the overcrowded wards of an hospital; but such exposure has occasionally developed the worst symptoms, even in the most robust individuals. From the observation of certain cases, I think there is at least a strong presumption, that foul air alone is capable of developing gastro-purpuric fever.

12. Cases of death have occurred from, and I have myself seen many suffering apparently owing to, the unmixed effects of famine; and in those cases the phenomena of gastro-purpuric fever did not present themselves.

13. However gastro-purpuric fever may have originated, the facts that have come under my notice have convinced me that it has been communicated and extended by contagion. To detail all these facts would extend my observations to an unnecessary length.

14. Gastro-purpuric fever appeared as an epidemic for the first time shortly after the establishment of meal stores in districts previously pretty healthy.

15. Notwithstanding the exposure of many of the wealthier classes, as poor-law guardians, members of relief committees, &c., to the contagion of gastro-purpuric fever, it has not in general been developed amongst them; but such of them as have been attacked with fever have usually exhibited the fourteen-day maculated typhus.

16. Persons placed in somewhat the same condition as the wealthier classes, except as to the habitual use of meat diet, have usually, when attacked, exhibited the gastro-purpuric, and not the typhoid form of fever. This class includes artisans and tradesmen in good employment.

17. From the two preceding observations it would appear, that the habitual use of animal diet has been more or less preventive of gastro-purpuric, but not of typhus fever.

If we review the consequences of the late famine, we will

find that famine reduced the physical and moral energies of our people to the lowest standard, engendering unwonted habits of filth and vagrancy, which scattered in all directions the seeds of disease; whilst the measures adopted for the alleviation of famine congregated the people (in the open air, in a most inclement season) in large masses. I do not impute the slightest blame in any quarter for the system of relief adopted, knowing full well that a system free from some evil could not be possibly devised to meet so extensive a famine.

Famine also drove crowds of half-famished people into our large and more wealthy towns and cities, where the means of procuring food were more abundant, and the wretched and over-crowded lodging-houses, in which this class of persons found shelter, became the foci of contagion, and of the worst forms of fever. The foulness of the atmosphere was augmented by the accumulation of filth and heaps of manure and human ordure in our lanes and alleys, to an enormous and most pernicious extent; partly owing to the prevalence of bowel complaints; partly to the dearth and dearness of food, which absorbed all the time and means of our people in providing for present subsistence; and partly to the inability or unwillingness of the farmers to expend money in purchasing this manure for the cultivation of a crop so precarious as potatoes. It was in the neighbourhood of such lanes and alleys too that fever prevailed chiefly and most fatally amongst the wealthier classes(*a*).

(*a*) This valuable paper was forwarded to us in September last, together with fifty illustrative drawings, highly characteristic of the appearances described in the text; we regret exceedingly that we are not able, at present, to introduce these illustrations, but, except a great number were lithographed, and all highly coloured, they would be incomplete as a whole. We have also been obliged, from want of space, to omit parts of Dr. Lalor's communication, which entered at considerable length into the minute detail of the symptoms, complications, and other particulars attending the Kilkenny epidemic. We hope the author will continue his researches.—ED.

ART. III.—*A Narrative of the last Illness and Death of Oliver Goldsmith, M. D.* By W. WHITE COOPER, F. R. C. S. E., Surgeon to the North London Eye Infirmary.

AMONG the many remarkable men to whom Ireland has given birth, Oliver Goldsmith occupies a conspicuous position. His chequered career, his varied talents, the simplicity of his character, the kindness of his heart, his very failings, and his early death, all serve “to point a moral, or adorn a tale.”

Some difference of opinion has existed as to the exact place of his nativity; but it is generally believed that he was born at Pallas, in the parish of Torney, County Longford, on the 10th of November, 1728(*a*). His father was the Reverend

(*a*) Such, at least, is the generally received opinion, and the entry in the family Bible, which still exists, would appear to confirm it; but another locality has been assigned as the birth-place of Goldsmith by several of his relatives and most of his early biographers. The late Robert Jones Lloyd, Esq., has often shewn us the room in which the poet was born, at Ardnagowan (now Smith Hill), near Elphin, and it is certain that he spent many years of his boyhood at this place. Mr. Lloyd has also printed a letter to this effect in one of the early editions of Goldsmith's poems; and this letter, together with one by the late Dr. Streat, was republished in the Rev. Edward Mangin's “*Essay on Light Reading.*” Goldsmith's grandfather was curate of Elphin, and master of the diocesan school of that place, where the poet received the first rudiments of his education. “At present,” says Mr. Prior, the apartment at Smith Hill to which we allude, “forms the dairy, though at that time one of the principal in a house second only to that of the bishop of the diocese, and since considerably enlarged; and the confinement of Mrs. Goldsmith is stated to have occurred unexpectedly during a visit to her mother.”

About two miles from Elphin, at Ballyoughter or Creamstown, the residence and patrimonial estate of the Goldsmith family, is said to be the scene of the “*Deserted Village.*” It possesses all the scenery described in the poem, even more perfectly than Lissoy or Auburn. We remember, when a boy, seeing the stump of the hawthorn tree, believed to be that mentioned by Goldsmith, in this spot. Several years ago this stump was taken up and made into snuff-boxes by the gentry of the neighbourhood.

It has always appeared to us that the poet, remembering this scene of his

Charles Goldsmith, and Oliver was the fifth of seven children. He received the rudiments of education first at Elphin, and afterwards at Athlone and Edgeworthstown. In June, 1744, he entered Trinity College, Dublin, as a sizar. His career there was not satisfactory, but this may, in part, be attributed to his falling under the dominion of a very harsh tutor. He was, in succession, intended for mercantile pursuits, for the Church, for the law, and for medicine, and in 1752 he commenced the study of the latter profession in Edinburgh. At the expiration of two years he proceeded to Leyden, where he remained about twelve months, studying chemistry under Gaubius, and anatomy under Albinus, but, it is to be feared, indulging freely in dissipation.

From Leyden he made a tour through Flanders, part of France and Germany, Switzerland, and the north of Italy, on foot, trusting to his wits and his flute(*a*) for support. In the autumn of 1756 he returned to England, and then became, first, usher in Dr. Milner's academy at Peckham, and afterwards assistant to an apothecary.

By the liberality of an old schoolfellow he was relieved from this position, and commenced practice as a physician. In 1758 he obtained the appointment of physician to one of the factories in India; but, being rejected at his examination before the College of Surgeons, he was unable to avail himself of it. From that time until his death he devoted himself entirely to literature.

Goldsmith's improvidence is known to have embittered his existence by the embarrassments it brought upon him; and

boyhood, had the locality in his remembrance when he described the "loveliest village of the plain," for the term Auburn did not, at the time of Goldsmith's residence in Ireland, belong to any of the localities assigned as the scene of the *Deserted Village*. While, however, the scenery is, probably, taken from his remembrance of Ballyoughter, the manners depicted in the poem are decidedly English.—ED.

(*a*) Sir Walter Scott, in his biographical memoir of Goldsmith, has made the singular mistake of stating that it was on the *violin* that he performed during this tour.

although the stimulus of necessity doubtless exercised its influence upon his pen, and thus was the means of giving to the world many of those productions which otherwise would never have seen light, yet it produced a most injurious effect upon his sensitive mind, and by the depressing influence it exercised upon his spirits, contributed to hasten the catastrophe which, at the early age of 45, brought him to the grave.

During 1773 and the two preceding years, much of his time was passed at a farm-house about six miles from London, on the Edgware Road, and close to the village of Hyde. Here he wrote his celebrated comedy, “*She Stoops to Conquer*,” his “*History of Greece*,” and his “*History of the Earth and Animated Nature*.” The quietude and retirement he here enjoyed soothed his mind, and were congenial to his habits of study. Nothing could exceed the simplicity of his arrangements: he occupied but one apartment, which served as bed-room and study, and in which he usually took his meals. So pleased was he with this mode of life that he for some time contemplated fixing his permanent residence in the country; he had become tired of the bustle and excitement of a town life, whilst his pecuniary embarrassments rendered necessary a greater degree of economy than he was able to practise in London. When with his intimate friends, this scheme was a favourite topic of conversation; and he had even, it is said, sold his right to his chambers in Brick-court, Temple, about three weeks before his death, in anticipation of taking up his abode at Hyde. These prospects, however, from which he promised himself so much happiness, were not permitted to be realized.

In the year 1773 he entered with enthusiasm upon a project from which he expected to reap great advantages. It was the publication of a *Dictionary of Arts and Sciences*, in the preparation of which he was promised the assistance and support of Johnson, Burke, Sir Joshua Reynolds, Garrick, Dr. Burney, and others of high reputation. Unfortunately, the scheme was not received favourably by the public, and Gold-

smith was obliged, greatly to his mortification, to lay it aside. About the same time his hopes received another blow: certain of his friends had applied to Government for some provision for him, but met with a refusal. Such disappointments, combined with other vexations, and the pressure of pecuniary difficulties, weighed heavily upon him: his mind became seriously uneasy, his spirits low, and his temper irritable. These changes, together with a marked alteration in his appearance, were observed by his friends; but as he did not think proper to communicate to them his anxieties, they were at a loss to what cause to attribute the difference in his temper and his looks. Whatever vexations of mind he might have felt, the following list of works upon which he was labouring at the end of 1773 and the beginning of 1774, shews that he did not permit his energies to be relaxed. He had in hand at the time mentioned, the "Grecian History," the "History of the Earth and Animated Nature," and "A History of England for the Use of Schools;" he was revising the "Inquiry into Polite Learning," writing his poem of "Retaliation," translating the comic romance of Scarron, and arranging papers for a Survey of Experimental Philosophy. This accumulated load of literary work pressing upon a frame already weakened by sickness, and on a mind ill at ease, was greater than could be borne. He had retired to Hyde in the month of March, 1774, to pursue his labours, but was speedily attacked with dysuria (to which he was subject), with an unusual feeling of general indisposition. Upon this he returned to town. By quiet, and proper treatment the distress in micturition passed away, but symptoms of low nervous fever remained.

Goldsmith's usual medical attendant was Mr. Hawes(*a*). This gentleman seems to have been highly esteemed by the

(*a*) William Hawes was born at Islington, November 28, 1736. He received his education at St. Paul's school, and adopted the medical profession, practising in the Strand as an apothecary until 1780, when he obtained the degree of M. D. He died at Islington, December 5, 1808. He was a man

poet, and also by Edmund Burke and Sir J. Reynolds, as was evinced by their intrusting him with the management of the affairs of their mutual friend after his decease. Circumstances arose during the illness of Goldsmith, which, although they shewed the good sense and judgment of Mr. Hawes, temporarily weakened the regard and confidence of his patient, and caused much obloquy to be thrown upon Mr. Hawes after the death of the poet. The Morning Chronicle of the 12th of April, 1774, contains the following paragraph: "A correspondent assures us that many friends of the late Dr. Goldsmith are very desirous that the apothecary who attended him would favour the public with the particulars of his illness, so that they may be enabled to judge whether James's Powder was administered, and the good or bad effects produced from it. Such an account no reasonable man can object to, unless he is too late convinced that he did not act judiciously or properly to his patient."

In compliance with this request, Mr. Hawes published a narrative of the circumstances as they occurred, which, although impugned by interested parties, certainly bears the impress of truth. It is dated April 25, 1774, and is dedicated to Sir Joshua Reynolds and Edmund Burke. In the Preface the author thus states his reasons for its publication:

"After the Doctor's decease you were pleased to honour me with the management of his affairs, till the person should appear who was authorized to administer to his effects; and I flatter myself that I have faithfully executed your intention. But as the Public are interested in the loss of a man so conspicuous for his talents and his humanity as the late Dr. Goldsmith, they become naturally anxious to know the circumstances of his illness and death. This has induced many gentlemen who knew that I had attended him, to apply to me

of much benevolence of character, and was mainly instrumental in the foundation of the Royal Humane Society. There is a silhouette of Dr. Hawes in Lettsom's Hints on Beneficence.

for information on the subject; I have accordingly related to them the particulars which came within my knowledge: but having been also applied to in the newspapers, as well as by private letter, I have thought it best to publish this little pamphlet; and the rather as I have reason to believe some persons have formed very unjust and uncandid notions respecting my conduct in this affair."

The following is the narrative of Mr. Hawes :

"On Friday, the 25th of March, at 11 o'clock at night, the late Dr. Goldsmith sent for me to his chambers. He complained of violent pain extending all over the forepart of his head; his tongue was moist; he had no cold shiverings, or pain in any other part, and his pulse beat about ninety strokes in a minute. He then told me he had taken two ounces of ipecacuanha wine as a vomit, and that it was his intention to take Dr. James's Fever Powders(*a*). I replied that, in my opinion, this was a medicine very improper at that time, and begged he would not think of it. But I am sorry to say that every argument used seemed to render him more determined in his own opinion; which gave me much concern, as I could not avoid thinking that the man whom I had all the reason in the world to esteem was about to take a step which might prove extremely injurious to him. I therefore endeavoured to reason medically with him, and observed that his complaint appeared to be more a nervous affection than a febrile disease. However, though I reasoned with him on the subject for near half an hour by his bed-side, and vehemently entreated him not to take Dr. James's Powders, yet I could not prevail upon him to say he would not. At last I addressed him, to the best of my remembrance in the following manner: 'Please, Sir, to observe, that if you do take the fever powder, it is entirely without my approbation; and, at the same time, remember

(*a*) Goldsmith had derived great benefit from the administration of James's Powders, in an illness from which he suffered in September, 1772; but they were then prescribed by Dr. James himself.

how very anxious I have been to persuade you to desist from it; and now I will take my leave, if you will be kind enough to grant me one request.' He very warmly asked me what that was? I told him that, as he had always consulted Dr Fordyce(*a*) in preceding illnesses, and had expressed the greatest opinion of his abilities as a physician, I hoped he would permit me to send for him. It was full a quarter of an hour before I could obtain his consent to this, as the taking Dr. James's Powders appeared to be the only object which employed his attention; and even then he endeavoured to throw an obstacle in my way, by saying that Dr. Fordyce was gone to spend the evening in Gerrard-street, 'where,' added he, 'I should also have been, if I had not been indisposed.'"

After some further difficulty, Mr. Hawes obtained the desired consent; and on going home, instantly dispatched a note to Dr. Fordyce, who sent word that he would wait on Dr. Goldsmith immediately. Mr. Hawes was not present at the interview, but early the next morning Dr. Fordyce called upon him, and informed him that he had represented to Dr. Goldsmith, the preceding night, the impropriety there would be in his taking Dr. James's Powders, but that, instead of paying any attention to his remonstrances on this subject, he had persisted in his own resolution, and taken two or three doses of the powder, though it operated both as a purgative and emetic. Mr. Hawes continues: "When I called to see him on Saturday morning (the 26th of March), Dr. Goldsmith's servant told me he believed his master was dozing, as he lay very quiet. I then said I would call in the evening; which I

(*a*) George Fordyce was born near Aberdeen, in 1736. He took the degree of M. D. at Edinburgh, 1758, after which he spent a winter at Leyden. He then settled in London, and obtained great reputation as a lecturer on chemistry, materia medica, and the practice of physic. He was elected physician to St. Thomas's Hospital in 1770, was a fellow of the Royal Society, and a member of the famous Johnsonian "Literary Club." He died May 25, 1802.

accordingly did, and his man, with great appearance of concern, when I asked him how his master was, replied, he was very bad, for he had been vomiting all day, and had had a great many loose stools; notwithstanding which, the servant observed, the Doctor would make him give him James's Fever Powders; so that he still continued the use of the medicine, and of consequence it increased in its pernicious operation, by which means the evacuations were continued for at least eighteen hours. I afterwards went into Dr. Goldsmith's chamber, and found him extremely reduced, and his pulse was now become very quick and small; when I inquired of him how he did, he sighed deeply, and in a very low voice said, 'he wished he had taken my friendly advice last night,' meaning Friday night, the 25th of March; and this was all he said during this visit, for whatever other questions I thought proper to ask him, he appeared so much exhausted as not to be able to make any reply to them; and I clearly perceived he was so very weak and low from the large and copious evacuation, that he seemed to have neither strength nor spirit to speak.

"As Dr. Fordyce had visited him a little before my attendance on him at this time, I thought it unnecessary to trouble him to make a reply to many inquiries; accordingly I took my leave, at the same time being firmly convinced, in my own mind, that every bad consequence was to be expected from the violent operation of this medicine.

"I was soon too well confirmed in my opinion by Dr. Fordyce's calling upon me at my house, and acquainting me, with much regret, that Dr. Goldsmith, by taking Dr. James's Powders, had done himself so much injury, that he thought it right to propose calling in another physician, as he would not follow his advice, in hopes that, by so doing, the patient would be convinced of the danger of his situation, and consequently be more inclined to conform to the mode of treatment prescribed. Dr. Fordyce said he knew that Dr. Goldsmith had a

great opinion of Dr. Turton; and desired that I would go very early in the morning, and, if I found him no better, persuade him to call in that gentleman. At eight o'clock the next morning I went, and found him much worse. He had passed a very bad night, having vomited several times, and had many loose stools; he lay absolutely sunk with weakness; and I was so very clear respecting the exceeding bad condition he was in, that, instead of fatiguing him with any questions, I immediately exerted my utmost endeavours to persuade him to send for Dr. Turton. To which he (being now, though too late, convinced of his unfortunate mode of proceeding) very readily consented, and desired me to order his servant to go directly. I accordingly did, and the Drs. Fordyce and Turton met at the time appointed, to assist at a consultation, which was continued twice a day till his death."

Notwithstanding the formidable state of prostration to which the patient would seem at this time to have been reduced, the symptoms fluctuated considerably during the ensuing week; sanguine hopes, indeed, were entertained of his recovery. It is related that Dr. Turton, finding but little evidence of active disease, said to him: "Your pulse is in greater disorder than it should be from the state of fever which you have,—is your *mind* at ease?" Goldsmith answered: "It is not." It would appear that a symptom which distressed him much was an inability to sleep, but the mental functions were unaffected; his conversation was perfectly rational, and he was at times even cheerful; but the hopes excited by these flattering symptoms were fallacious, for his end drew nigh. His appetite altogether failed, so that he was unable to take nourishment; his strength, weakened from the first by the powerful action of the antimonial, could not bear up against the want of sleep and the ravages of disease. His death was sudden and unexpected. At midnight, on Sunday, the 3rd of April, he was in a sound and calm sleep, his respiration easy and natural, his skin warm and moist; at 4 A. M., the gentleman who attended

him (Mr. Maxwell, most probably) was called up in haste, and found Goldsmith in strong convulsions; these continued without intermission: he sank rapidly, and breathed his last about a quarter before 5, on the morning of Monday, the 4th of April, 1774.

His death was thus announced in the Public Advertiser of April 5th: "Yesterday morning died, much and deservedly regretted, at his chambers in Brick-court, in the Temple, Dr. Oliver Goldsmith, author of the poems of the Traveller, and Deserted Village, and many ingenious works in prose. He was seized on Friday se'nnight with a nervous fever in his brain, which occasioned his death."

Mr. Newberry, the proprietor of James's Powder, being apprehensive that the reports in circulation, of the death of Dr. Goldsmith having been caused by that medicine, would be prejudicial to its sale, published affidavits from the three persons who acted as attendants upon the Doctor during his illness. These are interesting, as detailing many particulars not otherwise attainable; but although the parties assert that they are ready to verify their statements upon oath if required(*a*), this sort of testimony is open to much objection. As a narrative, the affi-

(*a*) This reminds me of an incident which occurred during the late meeting (1847) of the British Association at Oxford. A party (of which the writer was one) under the guidance of Dr. Buckland, Dean of Westminster, made an excursion to Shotover Hill, near which are some interesting quarries. The party was numerous, and as we moved along our numbers were continually increased by the country people, who were under the impression that a prize fight was in contemplation. On our reaching the summit of the hill a field lecture was delivered by the Dean, in the course of which he remarked, when speaking of certain fossils: "The quarrymen sometimes bring these fossils to me, and declare on *their Bible oath* that they found them in places where I know very well they never existed. Now if any of the quarrymen are present, and I think I see some of them, let them attend to me. Whenever a man comes to me with a wonderful tale, and winds up with 'I'll take my Bible oath on't,' I know perfectly well he is telling me a lie. Truth needs no such assertions; but a man who is conscious that his story is untrue thinks it necessary to bolster it up with strong words, and so tacks

davits are curious, and shew how great was Goldsmith's obstinacy in persisting in his own erroneous opinion; but there cannot be a doubt that the statements are coloured by the parties according to the impression which they wish to convey. There is much suspicion in the eagerness with which they strive to throw odium upon Mr. Hawes,—in the accuracy with which they profess to give the *ipsissima verba* of the conversations, and the anxiety they evince to do away with the notion that James's Powder had anything to do with the death of the patient. They probably felt that blame might in some degree attach to them, as the instruments by which the powder was administered, and, therefore, naturally leant towards that side of the question which would be most likely to exonerate themselves. Mrs. Smith, for instance, goes out of her way to state that, “in justice to the powder, I must declare that I sincerely believe the dose I gave him, and that which was given afterwards by John Eyles, did him no manner of injury.” There is clearly no ground for the insinuations thrown out against Mr. Hawes. Being satisfied that the patient was persisting in a wrong course, he first endeavoured to convince him of his error, and, failing in that, recommended the advice of an able physician. The support his opinion received from Dr. For- dyce, and the countenance shewn him by Sir J. Reynolds and Edmund Burke, prove that they, the parties most unprejudiced and best able to judge, attached no blame whatever to his conduct or his treatment.

The first affidavit is from Goldsmith's man servant, the second from his laundress (that is the proper denomination, we believe), and the last from the nurse employed to attend upon him. They appeared in the Public Advertiser of April 29, 1774.

on ‘I'll take my Bible oath on't.’ I hope that in future you'll remember this.” The Dean's shrewd rebuke is not limited in its application to the quarrymen at Shotover.

“ I, John Eyles, who attended the late Dr. Goldsmith as his occasional servant, do declare that he was taken ill on Friday, the 25th of March, and went to bed in the afternoon. He ordered me to go for Mr. Hawes, who came about 11 at night, and soon after sent his servant with some leeches and some medicines, which the Doctor did not take. While the leeches were applying the Doctor desired the lad would go back to Mr. Hawes, and fetch some of Dr. James's Powder. The lad returned and brought some powders wrapped up in papers, one of which I gave him, as well as I can recollect, mixed up with capillaire; and after he had taken it, he said it was the wrong powder. He seemed very angry with Mr. Hawes, and desired that I would find a bill that he owed him of about ten pounds, and pay him off the next day; but as the bill was not to be found it was let alone; however, the Doctor was so out of humour with Mr. Hawes that he would hardly even speak to him during the remainder of his illness. The next day, Saturday, the 26th, he was much worse, when he ordered me in the afternoon to go to Mr. Newberry and buy a packet of Dr. James's Powder. Mrs. Sarah Smith, the nurse, came and sat up with the Doctor this night, and I left the powder in her care. The next morning, Sunday, the 27th, I went again to the Doctor and relieved the nurse, and by his desire I divided one of the blue papers of the powder into six parts, and gave him one, and I do not recollect that it had any effect. From this time he took no more of the powder. The truth of the above I am ready to declare upon oath.

“ JOHN EYLES.”

“ I, Mary Ginger, who have attended the late Dr. Goldsmith for near five years past, and was constantly intrusted with the care of his chambers and all his things, do declare, that on Friday, the 25th of March, the Doctor was taken ill with a pain in his head, and went to bed in the afternoon. He continued ill the next day, Saturday, the 26th, and in the af-

ternoon he sent for me to come and sit by him while his servant went to Mr. Newberry's to buy some of Dr. James's Powder. At this time when I asked him how he did, he replied to me, 'I am very poorly; *damn that Hawes*' (those were his very words), 'I ordered him to send me Dr. James's Powder, and instead of that he has sent me some other which has done me a great deal of hurt, and if I had had the right, I should have been well by now.' At the same time, finding himself so much worse, he inquired of me if I could recommend him a nurse. I mentioned to him Mrs. Sarah Smith as a very creditable person, who went to him that very evening, and who informed me of all the circumstances which happened afterwards, and which she has since published. The truth of the above I am ready to declare on oath, if required.

“ MARY GINGER,

“ Wife of John Ginger, Head Porter of the
Hon. Society of the Middle Temple.”

“ I, Sarah Smith, who attended Dr. Goldsmith as nurse in his last illness, do declare that I was sent for on Saturday, the 26th of March, the day after he was taken ill. He seemed very low, and complained against Mr. Hawes for sending him, the night before, the wrong powders, asserting that if he had had Dr. James's Powder it would have done him good, whereas this had made him so much worse; he frequently during the remainder of his illness complained in the same manner of Mr. Hawes, and did not ever afterwards choose to speak to him, which Mr. Hawes took notice of to me. About 11 o'clock on this Saturday night (as I have before related in the public papers), I administered to him, by his desire, one-third of a paper of Dr. James's Powder, which his servant had bought at Mr. Newberry's. About 1 o'clock it began to make him sick, and I gave him several basons of chicken water, which he vomited up clear off his stomach in a gentle way. After this he had four or five small stools in the course of the night. About 10 o'clock on the next morning, Sunday the 27th, I left him

much in the same state he was in when I came to him the night before. I returned again at 6 o'clock in the evening, when his servant informed me that he had given the Doctor another dose of the powder in my absence, which was only a sixth of a paper, and which was attended with no operation at all. This was all the powder he took during his illness, for I was constantly with him afterwards. This very evening the Doctor again complained, in very harsh terms, of Mr. Hawes's behaviour in regard to the powder he had sent him, and seemed angry that John, his servant, could not find a bill Mr. Hawes had delivered in, in order to pay him off; but he insisted on my going this evening for Mr. Maxwell, an apothecary, who lives opposite St. Dunstan's Church. When Mr. Maxwell came, the Doctor pressed him very much to send him something back, but as Mr. Hawes had attended him, he was very unwilling to comply. However, after the most earnest solicitations from the Doctor, he at last sent him in a small gallipot an electuary, of which the Doctor only took a piece of about the size of a nutmeg. After this he followed the advice of his physicians. He did not die till the Monday se'nnight afterwards. On the night of the Doctor's funeral, Mr. Hawes, at his house, desired that wherever I went I would never recommend Dr. James's Powder; for he said it had been the occasion of Dr. Goldsmith's death. I replied to him, that what I gave him had but a very gentle operation, and mentioned the particulars of it as above. He returned for answer, that the violent operations had happened before I came to the Doctor. However, in justice to the powder, I must declare that I sincerely believe the dose I gave him, and that which was given afterwards by John Eyles, did him no manner of injury. The truth of the above particulars I am ready to confirm on oath, if required.

“SARAH SMITH.”

These affidavits were met by counter-statements in the

Public Advertiser of May 4, 1774, from Edmund Deans, Mr. Hawes's servant, and Mary Pratt, his maid, relative to the genuineness of the James's Powder; and from a friend of Mr. Hawes, Mr. Townsend, of Fleet-street, who was present at the conversation which Sarah Smith professes to detail as having passed between Mr. Hawes and herself, relative to the recommendation of the powders,—the correctness of which account he denies. It is to be regretted that neither of the physicians in attendance upon this interesting case made known the facts which came under their observation; but there can be no reasonable doubt entertained that the melancholy result was to be ascribed to the great exhaustion and expenditure of vital powers produced by the large and repeated doses of a medicine, powerful in its action, uncertain in its operation, and highly improper under existing circumstances.

It was at first proposed to honour the remains of the poet with a public funeral, but for this was substituted a monument in Westminster Abbey. The Public Advertiser of the 12th of April thus announces the interment: "On Saturday evening the remains of the late Dr. Goldsmith were interred in the Temple. The mourners who attended the corpse were Mr. John Day, Mr. Hugh Kelly, Mr. Robert Day, Mr. Palmer, Mr. Etherington, and Mr. Hawes."

It is well known that he was a prominent character at "The Club," and that the members, relying upon his extreme good nature, frequently indulged themselves in witticisms at his expense. On one particular evening it was proposed to write epitaphs upon the poet, whose dialect, appearance, dress, and character, afforded ample scope for satire.

Goldsmith seems to have borne the fire of wit with great good humour, and at the following meeting produced his admirable poem of "Retaliation." This was his last appearance among those friends who loved him when living, and mourned him when dead, with true affection. Edmund Burke was so overcome at the intelligence of his decease, that he burst into

tears. Sir Joshua Reynolds laid aside his painting materials (for him a great effort), and shut himself up during the remainder of the day; and the stern and rugged Johnson has left on record his opinion of the merit of Goldsmith, not only in his correspondence, and in that graceful epitaph which adorns the walls of Westminster Abbey, but by the high eulogium passed upon his departed friend in his *Lives of the Poets*:

“The life of Dr. Parnell,” he says, “is a task which I should very willingly decline, since it has been lately written by Goldsmith,—a man of such variety of powers, and such felicity of performance, that he always seemed to do best that which he was doing; a man who had the art of being minute without tediousness, and general without confusion; whose language was copious without exuberance, exact without constraint, and easy without weakness.”

I have collected the foregoing particulars of the last illness of Goldsmith, which, even at this late period, will not be, I trust, devoid of interest; and I have this gratification from my attempt, that it gives me an opportunity of paying a tribute to the memory of this great and good man.

“Τό γὰρ γέρας ἔστι θανόντων.”

ART. IV.—*Observations on a Case of open Foramen Ovale, in which the Circulation was remarkably deranged.* By ROBERT MAYNE, A.B., M. B., Physician to the South Dublin Union Workhouse, and Lecturer on Anatomy and Physiology at the Richmond Hospital School of Medicine, &c., &c.

PATHOLOGISTS have long been conversant with certain imperfect conditions of the septum cordis, the result usually of malformation, but which may perhaps be occasionally traceable to disease. I allude to that class of cases in which either the partition between the ventricles, or that between the auricles, or both, are defective, so that the right cavities of the heart communicate *directly* with the left.

I shall for the present confine myself to that variety of malformation commonly known as the open foramen ovale, in which the partition between the auricles is imperfect.

One of the consequences of this organic defect is, to permit the venous blood to pass, in quantities more or less considerable, from the right side of the heart directly into the left, without traversing the lungs or undergoing the process of respiration. The assemblage of symptoms produced in this manner by the admixture of the venous with the arterial current at the *left* side of the heart, and the consequent circulation, throughout the system at large, of blood imperfectly aerated, constitutes a form of cyanosis, well known to physicians. Comparative anatomists are also aware, that the human circulation, thus perverted, is somewhat analogous to the normal plan of the circulation in many of the reptile tribes, and that individuals so afflicted resemble in certain functions the animals to which they may (not inaptly) be considered as blood relations.

The records of medical science abound with examples of cyanosis thus produced, and it is, therefore, unnecessary to pursue that part of the subject further in the present communication.

Other cases there are in which the foramen ovale remains permanently open *without* producing cyanosis; and certain it is (let the explanation be as it may) that a patent condition of the aperture in question is compatible with a long life, and with a healthy condition of the circulatory and respiratory functions.

Much ingenuity has been displayed by writers, particularly those of the French school, in attempting to explain such dissimilar results from one and the same organic lesion. In many instances, where an open foramen ovale produces *no* disturbance of function, the valvular disposition of the aperture, or its small size, prevents any interchange of the venous and arterial blood; and in others, the ventricles, the auriculo-ventricular, the pulmonary, and the aortic orifices, retain their proper dimensions,

and the auricles their just proportions, so that the blood at either side of the septum flows onwards in its natural course, without impediment, and, consequently, no intermixture arises.

There is still, however, a third class of cases of the same malformation. In these, arterial blood passes from the left side of the heart into the right, through the open foramen ovale, and thus a mixture of arterial with venous blood taking place in the right auricle, the current transmitted to the lungs for aeration is a mixed fluid, consisting partly of venous and partly of arterial blood. This deviation from the natural course of the circulation is the converse of that already described as producing cyanosis; in the one, the current flows from the right auricle into the left, depriving the lungs of a portion of the blood which ought to circulate through them, and supplying the system at large with a mixed fluid, partly venous and partly arterial, thus causing cyanosis; whilst in the other, the current flows from the left auricle into the right, depriving the system at large of a portion of the blood which ought to supply it, and transmitting to the lungs a mixed fluid, partly venous and partly arterial.

In the following case lately under my care, the circulation was carried on in the manner *last* described, and its rarity induces me to lay the particulars before the profession.

Sarah Rochford, aged 27, came under my observation in July, 1845. She was of middle stature, and of spare make; her countenance was pale; and she never at any period exhibited the slightest tendency to cyanosis. Her symptoms were in a great measure those of heart disease, but from their obscurity its exact nature was not suspected. She complained of wandering pains in various parts of the chest, dyspnoea and palpitations on the slightest exertion, together with a constant, short, dry, teasing cough, very hysterical in character. She had a most uncommon aversion to the slightest change of position, and obstinately refused either to dress herself or to rise from bed; it was a matter of difficulty to obtain even an exa-

mination of the chest, so very irksome was the sitting posture to her; and she persisted in declaring herself utterly unable to move, and that her death would be the consequence of any attempt at exercise.

As she lay in bed her countenance was not expressive of heart disease. The respiration was tranquil, and little, if at all, accelerated; the pulse was regular, soft, small, and from 80 to 90 in the minute; but whenever she attempted to walk palpitations were induced, the pulse became frequent and irregular, and the breathing hurried and distressing. There was no pulsation nor undue distension of the jugular veins, nor had she throughout the slightest tendency to anasarca or other dropsical symptoms.

A remarkable feature of her case was constant sweating; unlike that of hectic, it was unceasing; whenever examined she was found steaming, and bathed in perspiration, so that her linen was at all times saturated with moisture. The cutaneous secretions were also most offensive, the odour exhaled from her person being almost insupportable.

Her appetite was wretched; she seemed to have little or no desire for nourishment; the attendants often expressed their surprise that nature could subsist on the incredibly small quantity of food consumed by her; yet emaciation proceeded slowly, considerable muscular development remaining even to the close of her life.

Her bowels were always torpid; many days would elapse without a stool, unless from the effects of purgative medicine. The urine was healthy, but in small quantity. The uterine functions were defective, for she menstruated at intervals of three or four months only, and even then the catamenia were scanty.

The cerebral functions were sluggish; she seemed lost in despondency, and would relate nothing of her previous history, appearing to be as incapable of mental as of bodily exertion.

The chest was carefully explored on several occasions, and

uniformly with the same results. On percussion it yielded the natural clear sound over the entire surface of both lungs, the region of the heart alone being unusually dull. *The respiratory murmur was everywhere excessively feeble*, and but little augmented by coughing, or by deep inspiration. There were no râles audible in any part of the chest.

The dulness produced by the heart was traceable upwards as far as the costal cartilage of the third rib, and extended beyond the ordinary limits of the cardiac region in every direction, but there was no fremitus, and the rhythm was natural. A loud *bruit de soufflet* accompanied the first sound, and was never absent; it was most intense at the sternal extremity of the fourth rib on the left side, and appeared to be confined to a very small space, for it was inaudible at the apex of the heart, nor could it be traced upwards along the course of the aorta.

The second sound was perfectly distinct, and unaccompanied by any bruit.

For two years after the particulars of her case were noted, this wretched creature lingered on in a miserable state of existence; she seemed to improve a little during the summer of 1846, but the amendment was only temporary. In the month of July last, at one of my visits, I was surprised to find her sitting up and dressed; she had taken a fancy to change the ward, and insisted on walking across the court-yard for that purpose: this exertion was too much for her; during the ensuing night she was observed to breathe heavily, and she expired suddenly before any medical assistance could be obtained.

AUTOPSY, TWENTY-FOUR HOURS AFTER DEATH.

Head.—The brain was rather softer than natural, but not in other respects unhealthy.

Chest.—The cavity of each pleura contained about a pint of bloody serum, remarkably dark in colour. The lungs were congested to an extraordinary degree, and the engorgement affected all parts of the pulmonary structure. The trachea and

bronchial tubes, to their smallest ramifications, were filled with a frothy, sero-sanguineous fluid; this was so abundant, that the tubes, after being sponged, were repeatedly choked by it. The bronchial mucous membrane was purple from vascularity. The surface of the lungs, in various situations, was of a purple colour, as if apoplectic; the parenchyma was everywhere heavy, and, when incised, an immense quantity of bloody serous fluid exuded from it. At the posterior thick edge of each lung, the pulmonary tissue was solid, and of an exceedingly dark colour; the upper lobe of the left was also solid, and of a dark red colour, but whether pneumonic or apoplectic it was difficult to determine.

The heart, brought into view by laying open the pericardium, seemed much enlarged, its increase in size being due to a vast preponderance of the right side of the organ. The apex of the heart, preternaturally rounded, lay farther to the left side than usual, and the long axis of the organ had undergone a change of direction, being unusually horizontal, and at the same time considerably lengthened. None of the left ventricle was visible on the anterior surface of the heart, the apex being constituted by the right ventricle solely.

The cavity of the right auricle was of at least double its ordinary dimensions, whilst its parietes had undergone very considerable hypertrophy, the muscoli pectinati in particular being excessively developed. Between the auricles a large aperture of communication existed; it was circular, and of sufficient size to permit a half-crown piece to traverse it readily. The edge of this opening was regular, and almost tendinous in appearance; there was no indication either of softening or of ulceration in any part of the auricle, nor was there any valvular provision to interfere with the blood in traversing the unnatural opening. The Eustachian valve was totally absent. The right auriculo-ventricular orifice, considerably increased in dimensions, allowed four fingers to traverse it; the tricuspid valve, rather thicker than usual, but in other respects healthy,

was in size proportional to the orifice. The right ventricle was greatly increased in capacity, and its walls had undergone an extraordinary amount of hypertrophy ; viewed from within it resembled a *left* ventricle, in the thickness of its walls, in the strength of its *carneæ columnæ*, and in appearing to appropriate the septum of the ventricles to itself exclusively. The pulmonary orifice was of large size, it permitted three fingers to pass ; the valves of the pulmonary artery were healthy.

When the heart was raised, the left ventricle was found quite diminutive ; it resembled in appearance that of a child about eight years old ; its point terminated abruptly at a considerable distance from the apex of the heart, and its walls were much thinner than those of the right ventricle.

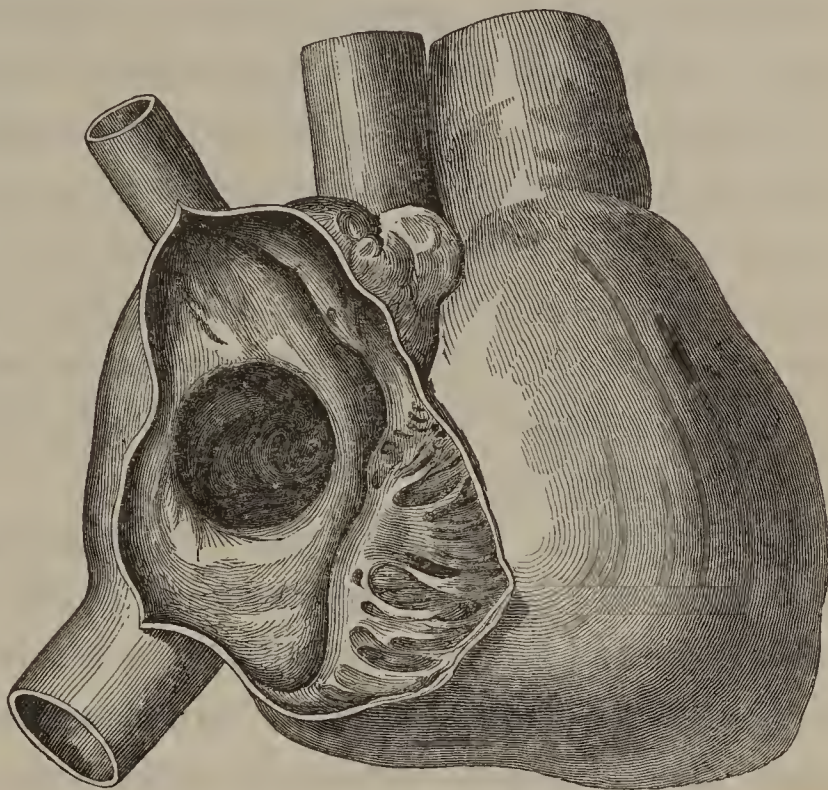
The left auricle presented its natural dimensions : laid open it displayed the enlarged and persistent foramen ovale, with exactly the same appearances as in the right auricle ; the walls of the left auricle were healthy. The left auriculo-ventricular orifice, remarkably contracted, permitted, with difficulty, the points of two fingers to pass ; the mitral valve was considerably thickened, and the posterior flap was manifestly shortened so as to permit regurgitation. The aortic orifice transmitted but one finger ; the aortic semilunar valves were healthy.

The great vessels exhibited a disproportion similar to that of the ventricles from which they respectively sprung ; thus the pulmonary artery was of enormous size, whilst the aorta was diminutive ; and the same disparity prevailed along the two arterial trees ; for the right and left pulmonary arteries were excessively large, whilst the abdominal aorta, just above its bifurcation, admitted the little finger with difficulty. *The ductus arteriosus was impervious.* The *venæ cavæ* were small, being in proportion to the aorta ; the pulmonary veins were, on the contrary, large at both sides, like the pulmonary arteries.

Abdomen.—The glandular viscera subservient to digestion were all healthy ; the stomach and bowels presented no lesion ; but the coats of the small intestines were remarkably thin, and

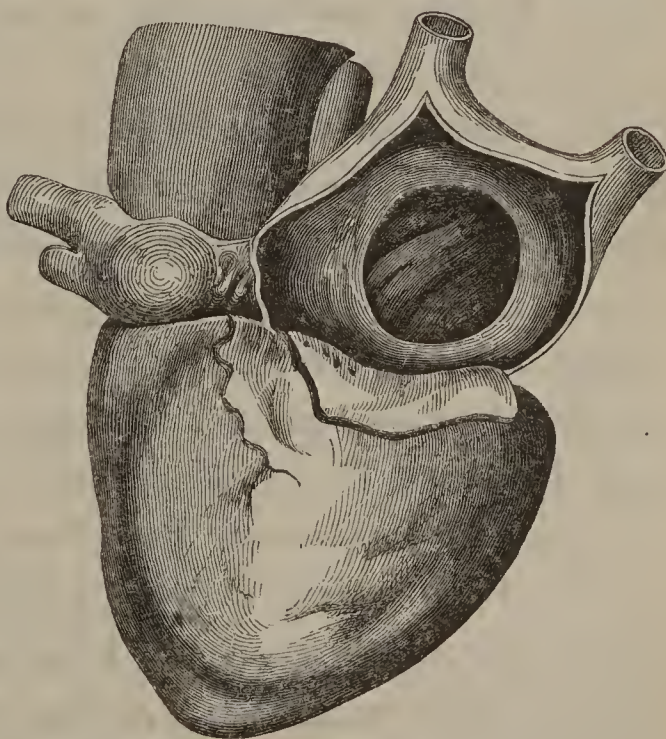
almost diaphanous. The urinary organs were sound; the uterus was normal; the left ovary presented two small spots, the size of split peas, apparently melanotic.

The annexed wood-cuts represent the heart on a reduced scale. This first view exhibits the right side of the organ with the right auricle laid open; the foramen ovale persistent; the right ventricle



of large dimensions, its walls hypertrophied, and forming the apex of the heart; and the pulmonary artery, to the extreme right of the top of the figure, of excessive size, whilst the aorta adjoining it is diminutive.

The second view shews the left side of the heart in striking contrast with the other. The left auricle is laid open, the foramen ovale persistent, and the left ventricle diminutive, the apex of the heart being formed by the right ventricle.



In this case, owing to the small size of the *left* auriculo-ventricular, and of the aortic orifices, together with the diminutive proportions

of the left ventricle, the aerated blood, on its arrival at the left auricle from the lungs, was unable to pass onwards in full quantity to the system; the surplus, therefore, escaped into the right auricle through the imperfect septum, and speedily regained the lungs,—the excessive development of the orifices and chambers of the right side of the heart, and the large caliber of the pulmonary artery, affording it every facility to pursue this unnatural course. In a word, there was the anomaly of *red blood returning to the lungs*, after a short circuit through the heart, *without going the rounds of the systemic circulation*, whilst the system at large was supplied with arterial blood undoubtedly, but in insufficient quantity.

J. F. Meckel, in his *Tabulæ Anatomico-Pathologicæ*, Fig. 3, Plate I., has figured a heart similar in every respect to that just described: he knew nothing of its history, but, reasoning on general principles, he adds: “In this case, if I be not mistaken, the blood must have gone, *not* from the right side of the heart into the left, but contrariwise from the left side of the heart into the right.”

The following paragraphs, from Corvisart, “*Essai sur les Maladies du Cœur*,” shew that he had been led by anticipation to consider the probable consequences of such derangements in the circulation:

“De ces considérations on pourrait peut-être inférer que dans ces sortes de cas j’admets le passage du sang veineux dans les cavités gauches, et son mélange avec le sang artériel, sans admettre le passage du sang artériel dans les cavités droites et son mélange avec le sang veineux. Mais j’observe que je n’ai prétendu appliquer ces explications qu’aux seuls faits dont j’ai tracé l’histoire, et dans lesquels je pense que les choses se passaient ainsi. Peut-être un jour aura-t-on occasion de faire l’observation inverse, c’est-à-dire qu’on pourra rencontrer des cas dans lesquels l’une ou l’autre des perforations dont j’ai parlé existant, les cavités gauches auraient acquis ou conservé une force prépondérante; alors le sang artériel des

cavités gauches étant poussé dans les droites, il en resulterait nécessairement le mélange du sang artériel avec le sang veineux, et non comme dans le premier cas, du veineux avec l'artériel.

“ Les distinctions que je fais ici de ces differens mélanges peuvent paraître peu importantes au premier aspect; mais en y réfléchissant un peu, il sera facile de sentir que le mélange du sang artériel avec le sang veineux dans les cavites droites doit altérer l'economie animale d'une tonte autre manière que le mélange du sang veineux avec le sang artériel dans les cavites gauches. Ainsi, dans le premier cas (celui du passage du sang artériel dans les cavités droites qui contiennent le sang veineux) quelle doit être la fonction principalement derangée? C'est sans contredit la sanguification ou les changemens chimiques que le sang doit subir dans le poumon parce que la respiration, au lieu d'agir sur un sang privé, comme il doit l'être lorsqu'il entre dans les artères du poumon, de plusieurs principes qu'il doit avoir perdus dans la circulation générale, sera déjà chargé d'une partie des élémens qui doivent lui être fournis par l'acte même de la respiration, d'un sang en un mot qui n'a presque plus besoin d'une élaboration qu'il vient de subir à l'instant.”

Bertin(*a*), Bouilland(*b*), Louis(*c*), and Hope(*d*), have all admitted that arterial blood occasionally passes into the right side of the heart, through an imperfect septum cordis; and to this cause some of them have attributed the hypertrophy of the right side of the organ which so frequently accompanies that malformation, but by none of these authors has the subject been fully discussed.

Cases exactly similar to Rochford's are of rare occurrence. Of the numerous examples now on record of *congenital* communications between the right and left cavities of the heart, a

(*a*) *Traité des Maladies du Cœur et des gros Vaisseaux.*

(*b*) *Traité Clinique des Maladies du Cœur.*

(*c*) *Recherches Anatomico-Pathologiques; Communication des Cavites droites et Gauches du Cœur.*

(*d*) *Treatise on Diseases of the Heart.*

very small proportion have had contractions of the orifices of the *left* side of the organ, whilst in the majority the orifices at the right side have been contracted. The reverse is the order of frequency of contractions resulting from disease, *morbid* contractions of the left auriculo-ventricular or of the aortic orifices being excessively common, whilst a similar condition of the right auriculo-ventricular or of the pulmonary orifices is rare. Of twenty cases of communication between the right and left sides of the heart, collected by Louis, *one only* had either the left auriculo-ventricular or the aortic orifice contracted, whilst there were ten out of the twenty with contraction of the orifice of the pulmonary artery, and one with occlusion of the right auriculo-ventricular opening. Of fifteen cases reported by Bouilland, ten had contracted orifices, and in eight out of the ten the orifices at the *right* side were those engaged. Of fifty-three cases of cyanosis referred to by Cintrac, twenty-seven had contracted orifices, the contractions in every one of the twenty-seven being at the right side of the heart.

Herein then consists the peculiarity of Rochford's case. *The left orifices* of the heart were *contracted*,—*the right* were *enlarged*.

In reviewing this very interesting case, our first feeling is one of surprise that, with such serious derangement of the circulation, life could have been so far prolonged; in this respect, however, it resembles many recorded cases, where, with an equal amount of malformation, the same, or even a much greater age, has been attained.

By inquiries instituted after her death, it was ascertained that Rochford had never enjoyed good health, having always been subject to cough and dyspnœa; yet for a time she discharged the duties of a domestic servant, until increasing infirmity rendered her unequal to exertion. The latter years of her life were spent in a state of perfect inactivity.

With a very free communication between the right side of the heart and the left, there was in this case no cyanosis,

because none of the black blood intermingled with the arterial stream. In offering this explanation, I am aware that Bertin, Louis, and others, have endeavoured to shew that the blue colour of cyanosis is produced, *not* by the mixture of black blood with the red, but by obstructions to the circulation at the right side of the heart, and a consequent engorgement of the general venous system. These writers have adopted this opinion in consequence of many cases of imperfect septum cordis being unaccompanied by cyanosis, whilst a blue colour sometimes occurs in organic affections of the heart and lungs, in which no admixture of the venous with the arterial blood is possible.

To give the first part of this argument, however, any value, it should be shewn that the current flows from the right side of the heart into the left *whenever* the septum cordis is imperfect; whereas the case just recited renders it extremely probable that the course of the blood in such lesions is sometimes diametrically the opposite.

A very remarkable feature of Rochford's case was the feebleness of the respiratory murmur over all parts of the chest, *without collateral evidence that any of those lesions existed either in the lungs, the pleura, or the great vessels which usually render the respiration obscure.* The diminished intensity of the respiratory murmur I am strongly inclined to attribute to the *quality* of the blood which circulated through the lungs, of which a large proportion had come from the right side of the heart *already arterialized.* Blood of this description must have required less aeration than the corresponding blood in a healthy subject, which, on leaving the heart, is always perfectly venous; and the demand for air being therefore limited, a diminished activity of the respiratory function was the consequence.

The uncommon dislike evinced by the unfortunate subject of these observations to the slightest change of position, and the immediate dyspnœa and palpitation consequent on every

movement, find a satisfactory solution in the state of her heart. The extraordinary development of the right side of the organ, and in particular the amazing strength and great capacity of the right ventricle, were calculated to determine unduly to the lungs whenever the action of the heart was accelerated; and that this aversion to move was instinctive on her part, and essential to her very existence, may be inferred from the fatal pulmonary congestion (the result of an unusual though trifling exertion) by which her life was so suddenly terminated.

The torpor of the digestive system, the brain, and the uterus, may have arisen from the scanty supply of arterial blood transmitted to the several organs by the diminutive aorta.

The excessive secretions from the skin, and the small amount of the ingesta, afford to the physiologist a wide field for speculation.

The extensive dulness of the præcordial region resulted from the hypertrophied condition of the right side of the heart; but it may be a question whether the *bruit de soufflet* was produced at the preternatural opening between the auricles, or at the left auriculo-ventricular orifice. The latter explanation is the more plausible of the two, because the mitral valve permitted some slight regurgitation, and the *bruit* was distinctly systolic. The excessively small size of the left ventricle, and its unnatural position as regards the apex of the heart, may account for the site in which the *bruit de soufflet* was heard, and its absence in the situation where the murmur is usually audible in mitral valve disease.

The diagnosis of unnatural communications between the right and left chambers of the heart is confessedly most difficult. In the words of Bouilland it may be said that "there is nothing in the symptoms which might not equally belong to other diseases of the heart, such as diseased valves, contracted orifices, &c." And, as Louis expresses himself: "The symptoms assigned to this communication, viz., blue colour, faint-

ings, sensibility to cold, suffocations, &c., are only the exaggeration of the ordinary symptoms of heart disease, and are often absent. The only certain symptoms of the communication in question is a suffocation more or less considerable, accompanied or followed by faintings, with or without blue colour of the entire body, and *produced by the slightest causes*."

May we not venture from the foregoing details to set down *a remarkable feebleness of the respiratory murmur* as a corroborative sign, in certain cases, of this malformation?

ART. V.—*Observations on Œdema of the Glottis, occasioned by the Attempt to swallow boiling Water: illustrated by thirteen Cases.* By WILLIAM JAMESON, M. D., F. R. C. S., one of the Surgeons to Mercer's Hospital, Physician to St. Peter's Parochial Dispensary, and consulting Accoucheur in Ordinary to the Coombe Lying-in Hospital.

ONE of the most frequent causes of œdema of the glottis in young children, occurring in hospital practice, is that occasioned by the attempt to drink boiling water out of the spout of a kettle. I say, attempt to drink, for, I believe, in most instances, the steam is merely inhaled; and on very few occasions, if ever, is the water swallowed, owing to the supervention of spasm the moment it is taken into the mouth, which causes it to be immediately rejected.

As several cases of this affection have come under my observation in Mercer's Hospital, which called for the operation of tracheotomy, I think the recital of them may not be considered uninteresting, as some were attended with difficulties in their performance, of practical importance, not sufficiently dwelt on by any author that I am acquainted with, and that are very necessary for the surgeon to bear in mind when called on to perform this operation; also shewing us what cases call for its adoption, and those which can be treated without having recourse to it.

CASE I.—The first case that I shall detail is that of James Kinselagh, aged two years, a fine, healthy child, who attempted to swallow boiling water from the spout of a kettle, at 9 o'clock A. M., on the 23rd January, 1842. The child, after crying violently for some time, fell into a sound sleep, which lasted for four hours, but on its awaking it complained of soreness of throat, difficulty of breathing, and painful deglutition.

The mother conveyed him to Mercer's Hospital at 2 o'clock, P. M., and immediately on his admission the resident pupil had four leeches applied over the upper bone of the sternum ; but, as the symptoms were not relieved I saw him shortly after, when I found him with his head drawn back, breathing with great difficulty, stridulous, each inspiration being much shorter than the expiration, consequently the thorax was scarcely more than half filled ; countenance pale, and expressive of great suffering ; surface cold. No blisters were detected on the inside of the cheeks or mouth, but the epiglottis was erect, and a little swollen ; pulse 120. I had an emetic at once administered, and hot jars applied to his feet.

At 4 o'clock, P. M., the breathing was more difficult and croupy ; chest dull on percussion ; face and lips swollen, and a little lead-coloured ; eyes fixed ; head thrown very much back ; pulse 130 ; surface cool ; inclined to stupor ; epiglottis a little more swelled, and erect as before.

In the absence of my colleagues I had the assistance of Dr. Hargrave, who fully concurred with me, under the circumstances, that tracheotomy held out the only chance of saving his life ; accordingly, at 5 o'clock, P. M., being eight hours after the accident, I performed the usual operation.

Having first secured the body and arms of the child tight, by rolling it up in a blanket ; then placing it on a table, the head being well held back, I made the usual incisions along the median line from the upper bone of the sternum, so as to reach the inferior edge of the thyroid cartilage, cutting cautiously between the muscles till I got to the fascia covering the

trachea. Up to this period of the operation I was not in the least embarrassed by any blood. Having then cut through the fascia, I seized the trachea with a small double hook with difficulty, in consequence of its great depth and the rapidity of its motion up and down in the bottom of the wound. This instantly produced a violent spasm and attempt at coughing. With a scissors I then cut out a circular piece of the trachea, occupying a portion of two rings, about the size to admit a large pea. This was followed instantly by very smart hæmorrhage from some of the thyroid veins, part of which flowed into the trachea, and nearly suffocated the little patient. However, he came to by suddenly holding him up, grasping the lips of the wound, placing a tube in the trachea, applying stimulants to the nose, giving him warm wine and water, the application of hot flannels, and also small doses of camphor mixture. By these measures he was sufficiently restored to be placed in bed, in a very weak, collapsed, and low state.

I found it now necessary to remove the pipe from the trachea, as it was too short to be got satisfactorily into it. This was instantly followed by another gush of blood, some of which also got into the trachea, and nearly suffocated him. However, with a violent effort, he was able to cough it up, and he was left in charge of the resident pupil, breathing freely through the wound.

At 8 o'clock, P.M., he was sleeping soundly, breathing freely through the wound, which, from time to time, had to be cleared of the mucus by means of a sponge. The countenance was not indicative of pain, pulse not so frequent; warmth well generated. Ordered one grain of calomel, with the eighth of a grain of tartarized antimony, every second hour through the night, and whey *ad libitum*.

24th. At visiting hour this morning he was reported to have passed a quiet night; had no return of the hæmorrhage; breathes freely through the wound, which frequently required

to be freed from the mucus, which collected in large quantities from time to time ; countenance lively ; pulse 120. As the bowels were not moved since yesterday, an emollient enema was directed to be administered, and the powders to be continued, at intervals of four hours each.

25th, second day. Bowels several times disturbed during the night ; slept pretty well between intervals ; slight bronchitis ; increased discharge of mucus, which is very embarrassing at each attempt at coughing ; pulse 130, and weak. To discontinue the powders, to have a starch and opium injection administered immediately, and repeated, if necessary, in two or three hours : to have chicken tea.

4 o'clock, P. M. Got two enemas, which came away shortly after they had been given ; and as the diarrhœa continued, he was ordered Dover's Powder, with mercury and chalk, every third hour, and to have arrow-root, with port wine. This had the effect of checking the attack in the bowels, and procuring sleep, but the bronchitis appeared to be on the increase.

26th. But little change since yesterday ; and although he looks better, is cheerful, and the pulse reduced in frequency, still there is evidence of increased bronchitis, and slight pneumonia at the bases of both lungs. Powders, with calomel, hyd. c. cret., hippo, and Dover's Powder, were given at intervals, and leeches and blisters applied to the chest, but without effect. The lungs became engorged, respiration was reduced to a mere pant, and he ultimately died on the morning of the 28th, on the fifth day after the operation. I was not able to procure a *post mortem* examination.

That the operation prolonged life in this case I have little doubt ; and had it not been for the extensive bronchitis, with the pneumonia which supervened, the case might have had a more fortunate termination.

Now it occurred to me that the bronchitis which so frequently follows this operation is produced by the cold air passing directly into the trachea without first acquiring heat and

moisture, as it does under ordinary circumstances in its passage through the nose and mouth; and, consequently, if this be true, an operation performed in the depth of winter, as this one was, is more likely to be followed by this species of attack; therefore it is advisable to have the apartment of a patient on whom this operation has been performed kept as warm as possible.

The following cases may be considered to favour this view.

CASE II.—Thomas Mack, aged two years and three months, was admitted into Mercer's Hospital at 12, A. M., on the 9th of May, 1842, under Mr. Read's care, in consequence of having drank some boiling water out of a kettle at 9 o'clock, A. M. His mother, shortly after the accident, consulted an apothecary, who gave her some oil and lime-water to rub the part with; but as his breathing and deglutition became difficult, she sought advice at the hospital. As the symptoms were not very urgent, an emetic was ordered in the first instance, and at 3 o'clock, P. M., it was seen again in consultation, when, all the usual symptoms being present, viz., the difficult and croupy respiration, swelled, pale face, inclination to stupor, cold surface, and quick, small pulse, it was at once agreed to open the trachea, which was performed in the usual way. There was no hæmorrhage of any account, the trachea, in this case, lying very superficial, and perfectly quiescent; it, therefore, was easily seized with the double hook, and a portion of three of its rings removed with a pair of scissors: there was neither spasm, hæmorrhage, nor any fit of coughing produced on its being opened.

The child breathed freely at once through the wound, got a little wine and water, and was placed in bed with hot jars to its extremities, a good fire was ordered to be kept in the ward, and a little wine and water to be given from time to time.

On revisiting it in the evening the face was pallid, pulse quick and feeble, respiration hurried; inclined to coma. A

large blister was ordered to be placed along its spine, to be kept on for three hours; to have a grain of calomel every hour; arrow-root and wine through the night.

10th, 9 o'clock, A.M. Passed a quiet night; blister rose well; breathes freely through the wound; mucus obliged to be removed frequently with a sponge. Ordered small doses of calomel, with hydrargyrum cum cretâ and Dover's Powder, every hour.

At 10 o'clock, P.M., in consequence of considerable dullness existing under the left clavicle, with puerile respiration in the right lung, three leeches were ordered to be applied under the left clavicle; the powders to be continued.

11th. Leeches bled well; passed a quiet night; in all respects going on well. As he has had fifteen grains of calomel and twenty-four of hydr. c. creta, the calomel was ordered to be omitted from the powders, and the interval between the doses increased to three hours, and if diarrhœa should set in, to give the Dover's Powder alone; to have arrow-root and port wine, and chicken tea and whey if necessary. It is observed that whenever he wakes up from sleep he has a violent fit of coughing, which gets rid of a quantity of mucus through the wound; that has collected during sleep.

It is unnecessary to give a daily report of this case; suffice it to say, he continued to improve daily, and on the sixth day we were able to draw the lips of the wound partially together with sticking-plaster, as he breathed partly through the mouth and nose.

On the 31st of May he was discharged cured, the wound in the neck being quite healed, and the voice having completely returned.

A warm atmosphere having been kept up in the ward during the whole treatment of the case, tended, in my opinion, materially to assist the other measures adopted, and the following case also corroborates this idea.

CASE III.—Edward Lee, aged one year and ten months, re-

siding at Kilgobbin, was admitted into Mercer's Hospital, on the 9th October, 1842, at six o'clock, P. M., in consequence of having attempted to drink boiling water from the spout of a kettle at eleven o'clock in the morning (seven hours previous to admission). It appears he suffered no inconvenience at the time, still his mother gave him some melted butter to drink, which vomited him; shortly after he ran about the fields, and ate some blackberries. At 2 o'clock in the day his mother offered him some fried bacon, which he could neither chew nor swallow; and then, for the first time, she observed his breathing to be greatly affected, and, in consequence of this symptom increasing, sent for Mr. Fox, the medical incumbent of the neighbouring dispensary, who recommended her bringing him instantly to hospital.

On his arrival his symptoms were found to have increased rapidly while being conveyed to town, viz.: the stridulous breathing, dulness over the whole chest on percussion, difficult deglutition, congested countenance, quick, small pulse, and fast-increasing stupor. In consultation it was deemed advisable to operate. Accordingly, having placed him on a table, I performed the usual operation. The trachea, being rather superficial, was soon exposed, without much loss of blood, as no vein of any magnitude was divided; little or no spasm occurred upon the trachea being seized with the hook; and, on the piece being removed, the child breathed freely through the wound; congestion of the face disappeared, and he was restored to consciousness. However, there was a substance at the inferior angle of the wound which was sucked over the opening into the trachea at each inspiration, and which acted as a valve; this at first was conceived to be a portion of the thymus gland, but, having seized it with the forceps, I removed it, and on examination found it to be an enlarged lymphatic gland about the size of an almond.

The child being now able to breathe freely through the wound, was placed in a warm bed with hot jars around it;

and, when reaction set in, calomel, James's Powder, and Dover's Powder, were administered every third hour; the nurse having received directions to have a good fire kept in the ward.

10th. At visiting hour this morning he was reported to have passed a quiet night, looks cheerful, breathes through the wound, from which the mucus is required to be frequently removed with a sponge; chest sonorous throughout; pulse quiet; slight vesications on the inside of the cheeks; no bronchitis. To continue the powders and have some whey.

In the evening, in consequence of his face becoming flushed, respiration hurried, and pulse quick, two leeches were applied under the clavicle.

11th. This day he is in all respects better; breathing relieved; pulse 90; no evidence of bronchitis; bowels regular.

On the fifth day he had so far recovered that he had some chicken broth with a little bread in it, and all medicines were omitted: on attempting to cry there is some voice.

On the eighth day, in consequence of an increased secretion of mucus, attended with difficulty in getting it through the wound, he got an emetic, which gave him great relief. On the following day, as he breathed partly through the mouth, and the wound had a granulating healthy surface, the edges were partially approximated with sticking plaster. On the following day they were drawn into perfect apposition.

26th. The wound in the throat is completely healed; his voice restored, which his mother states to be even *clearer* than before the accident. On the 31st he was discharged cured.

It sometimes happens that a patient never appears to recover from the shock produced on the nervous system from the operation; this is exemplified by the following cases.

CASE IV.—Lissy Cosgrave, aged one year and seven months, was admitted into Mercer's Hospital, at 3 o'clock, P. M., on the 21st March, 1842, in consequence of having attempted to swallow boiling water from the spout of a kettle three hours previously.

The symptoms were not urgent. There was no vesication about the lips or mouth, and the difficulty of breathing was not remarkable. An emetic was administered, and the child visited by Mr. Tagert and myself at 4 o'clock, P.M. We found that the emetic had acted sufficiently, but that she was pale, pupils dilated, eye-lids half open; inclined to coma; pulse quick and weak; breathing stridulous and hurried. Under these circumstances it was determined to operate. The child was accordingly placed on a table with that intention, when she shewed symptoms of rallying; its countenance brightened up; it cried; called its mother, whom it recognised; drank some whey freely; the breathing became less embarrassed, and we now considered that this partial state of stupor was caused, in all probability, by the action of the emetic, from the effects of which she was then rallying.

Under these circumstances it was agreed to defer the consideration of the operation till Mr. Read should see it (whose case the child was). It was, therefore, placed in the mother's arms, and small doses of calomel ordered in the interval.

At 7 o'clock, P.M., it was deemed necessary to operate, as all the symptoms were aggravated, attended with considerable venous congestion of the vessels of the neck and face.

Mr. Read, therefore, performed the usual operation, but was greatly embarrassed by venous hæmorrhage, which was profuse, requiring ligatures to arrest its flow, or the child would have died on the table.

When the trachea was caught by the hook the child was seized with a violent spasm, and ceased to breathe till portions of three rings were cut out, when, by placing it sitting up, and then applying stimulants to its nose, it rallied, and breathed freely through the wound. It was then placed in its mother's arms; small and repeated doses of calomel every second hour were given through the night, together with arrow-root and wine.

11 o'clock, P.M., four hours after the operation, breath-

ing reduced to a mere pant; percussion very dull over the whole chest; pulse feeble, and surface cold: appears to be dying.

Died at 8 o'clock the following morning, having only survived the operation thirteen hours. No *post mortem* examination was obtained, as the mother carried it off immediately after death.

The following case further illustrates the fatal results attendant on the shock from operation.

CASE V.—Laurence M'Call, aged sixteen months, residing at Ringsend, in consequence of having attempted to swallow boiling water from the spout of a kettle, on the 20th May, 1842, was admitted into Mercer's Hospital, at 4 o'clock, P. M., one hour after the occurrence took place. At this time the symptoms were not urgent: the child was cross, whining, and unable to suck, had some cough and irritability of the stomach; no difficult breathing, or vesication about the mouth or face; ordered an emetic. At 8 o'clock, P. M., the peculiar stridulous and rapid breathing, quick pulse, congested countenance, and inclination to coma, with diminution of temperature, having set in, it was decided in full consultation that no time should be lost in having recourse to the operation, which was accordingly performed by Mr. Auchinleck, in the usual way.

There was very little hæmorrhage, and the opening into the trachea was easily effected, as it lay very superficial; there was no spasm or fit of coughing on the trachea being seized or the piece being removed; the child breathed freely through the wound; opened his eyes and appeared to be perfectly conscious, apparently looking about for his mother. It was placed in bed with hot jars under its arms and to its feet; arrow-root and wine to be given during the night, and one grain of calomel every second hour.

21st. Passed a quiet night till towards six in the morning, when he had a few stools; had several fits of coughing, which filled the wound with ropy mucus that nearly suffocated the

little patient; the breathing became hurried; pulse 160; right lung clear on percussion; left lung dull throughout, particularly under the clavicle; two leeches to be applied under the left clavicle; a blister between the shoulders; to discontinue the calomel, and substitute hydrargyrum cum cretâ, with Dover's Powder every third hour, and to continue the wine and arrow-root; the suck to be given in a spoon; the ward to be kept warm; hot jars continued as before.

2 o'clock, P. M., pulse hurried; patient greatly distressed by the mucus collecting in the wound; left lung more dull; leech-bites bleeding freely; to continue the mother's milk.

At 8 o'clock, P. M., I was summoned in a hurry to see the child, and on arrival found it dying; face livid; no pulse perceptible at wrist; surface cold; and before we could get sinapisms to the limbs or a blister to the chest, the child died, twenty-four hours after the operation.

The following case, under Mr. Palmer's care, appears to me to have had the operation performed too late to afford a hope of recovery, although this circumstance could not have been avoided. I am indebted to Mr. Butcher for the particulars.

CASE VI.—Lucy Costello, aged one year and ten months, was admitted into Mercer's Hospital at half-past 8 o'clock on the morning of the 17th May, 1844, nearly asphyxiated, produced by having taken a sup of boiling water out of the spout of a kettle, the evening before, at 6 o'clock. After this the child screamed violently; some oil was given by the mother to allay the pain, which shortly after subsided, and until about 12 o'clock the same evening no unpleasant symptoms occurred.

About that hour the child began to breathe heavily, and shortly after the mucous rattle was quite perceptible in her throat, at the same time the face was pale, and the body cold. She sought the aid of an apothecary, who gave some castor oil and a little ipecacuanha; the greater part of this was rejected through the nose. In this state she continued till admission. Her extremities were cold; eyes turned up under the lids; pulse 143,

a great quantity of mucus in the throat and chest; respiration croupy.

Mr. Palmer immediately proceeded to open the trachea in the usual manner, fifteen hours after the accident. Two large veins running at either side of the median line were avoided, and the trachea laid bare. When this was done, the depth of the cavity was more than could be imagined. The sternomastoid being in violent action, thus bearing up the integuments at both sides of the neck: two aneurism needles were used as retractors. The trachea was seized in a hook, and a small piece including the section of two rings cut out.

Immediately when the knife sunk into the trachea, the air whizzed out forcibly, and when the bit was removed, a quantity of mucus was instantly discharged, and the child seemed absolutely charmed into life, looked immediately around her, with the greatest cheerfulness, and the countenance changed at once from the most sunken state to a calm and placid expression. Not more than a tea-spoonful of blood was lost.

As the wound looked to be a little valvular, a broad piece of sticking-plaster was placed at its inferior angle, and carried down on the abdomen, which tended completely to keep the divided parts asunder.

3 o'clock, P. M. The trachea seems loaded with mucus, and the child has relapsed into nearly the same state as before the operation. To have a grain of calomel and a quarter of a grain of ipecacuanha every fourth hour, and a blister to the chest. The child died the following morning, twenty-four hours after the operation.

A hurried *post mortem* examination was made by the resident pupil, in consequence of the friends being desirous to get the body, so he had only time to examine the lungs, which were very heavy and solid, being engorged with blood, and loaded with mucus. The larynx and trachea were not examined.

That life may be saved, even under the most unpromising and unfavourable circumstances, by the operation, is evidenced by the following.

CASE VII.—Ellen Tobin, aged two years, residing at Westland-row, was admitted into Mercer's Hospital, 19th December, 1845, at 9 o'clock, A. M., in consequence of taking a sip of boiling water from the spout of a kettle the night before, at 10 o'clock. Shortly after the accident the mother applied to the hospital, and received directions to give an emetic; but as she became alarmed at her condition she conveyed her to the hospital, in a nearly asphyxiated state. I never witnessed the same amount of apparent distress experienced on each attempt at inspiration as in this instance. The cartilages of the ribs were sucked in in a most remarkable manner, leaving a great hollow at each effort made by the little patient to fill its lungs. Still, unpromising as this case appeared, even to entertain a hope that any beneficial result was likely to occur from the operation of tracheotomy, it was decided, in consultation, that the chance should be given. Accordingly I performed the usual operation. On the piece being cut out of the trachea the air instantly rushed in, the child sat up, coughed, looked about, and appeared quite revived. A large vein ran on each side of the incision; these were easily avoided, and there was not a teaspoonful of blood lost. There was no difficulty in seizing the trachea, as it lay in a very shallow wound, and the whole operation was completed in less than four minutes.

She was placed in a warm bed; small doses of calomel and James's Powder were given at intervals of three hours, and the ward was kept very warm. On the following morning she was breathing partly through the wound and partly through the mouth.

As she continued to go on favourably, on the 21st all medicines were discontinued. On the fourth day the wound was partially closed.

On the 1st January the wound had completely healed, and on the 12th she was dismissed cured.

That spasm may take place on the trachea being seized by the hook, to such an amount as nearly to asphyxiate the patient, requiring the greatest promptitude and presence of mind in the operator, the following is a good example.

CASE VIII.—James Mondon, aged two years and a half, a fine, chubby-looking child, was admitted into Mercer's Hospital on the 25th June, 1847, at 3 o'clock, in consequence of having attempted to swallow some boiling water from the spout of a kettle two hours previously.

Immediately after the occurrence his mother gave him some melted butter, which vomited him well, and shortly afterwards he eat some dry biscuit.

On admission there was nothing urgent in the case; the breathing was free, and unattended with any stridulous or croupy respiration; no difficulty of deglutition; no blisters about the mouth, cheeks, or tongue; nothing remarkable about the epiglottis. A leech was applied over the first bone of the sternum; an emetic administered; the extremities and surface kept warm.

At 7 o'clock, P. M., the breathing became embarrassed and stridulous; features bloated and pale; pupils contracted; pulse 100; head drawn back; surface cold; epiglottis swollen, hard, and erect. Shortly after these symptoms presented themselves the case became more urgent by the addition of fast-approaching coma. Mr. Read, therefore, proceeded at once to operate. On the trachea being seized with the hook, and a small opening made into it, the child instantly stretched itself out at full length, fixed its features, which became highly congested, and ceased to breathe. The trachea was instantly seized again with the double hook, and the opening enlarged; this was easily done, as the tube no longer worked up and down in the wound. He was then placed suddenly in the sitting posture,

a flexible catheter passed into the trachea, and one puff of air blown in, stimulants, at the same time, being applied to the child's nose. The chest heaved, he coughed up some blood and mucus from the trachea, and looked about.

Small quantities of warm wine and water were given; he was rolled up in hot blankets, and placed in a warm bed, surrounded with hot jars.

Not two tea-spoonfuls of blood were lost during the operation. On reaction setting in he was given small doses of calomel and Dover's Powder. On the following day violent bronchitis set in; the air cells and trachea were loaded with mucus; face bloated; pulse 120, small. The body to be smeared with mercurial ointment; the powders to be continued.

Next day he died at 3 o'clock, fifty hours after he had taken the hot water.

Autopsy, sixteen hours after death.—Thorax very dull all over on percussion; on opening it the lungs did not collapse, but were very dark-coloured and firm to the touch; old fibrous adhesions about an inch long were universal in both pleural cavities, but no recent lymph was effused. Incision proved the lungs to be in the first stage of pneumonia, congested and solid, having little air in them, except in their upper lobes; they scarcely floated on being placed in water. On slitting up the trachea it was found covered with recently effused lymph as far as its bifurcation, but not amounting to the formation of false membrane. The mucous membrane under it was of a light scarlet colour, the vessels being finely injected. The artificial opening proved to be placed a little below the cross slip of the thyroid gland.

The epiglottis was erect and tumefied, and the thyro-epiglottidean folds had flakes of lymph on their surface, and infiltrated with serum, so as nearly to obliterate the opening into the larynx.

For the particulars of the following case I am indebted to

my colleague, Mr. Tagert, and as it also proves what promptitude and presence of mind will do under most unfavourable circumstances,—by the timely introduction of the catheter in such cases,—I insert an abstract of it here.

CASE IX.—In the year 1844 Mr. Tagert found it necessary to perform this operation on a little child two and a half years old, while labouring under the usual symptoms after attempting to swallow the steam of hot water.

On the trachea being laid bare it was seized with a hook, when the child instantly ceased to breathe, stretching itself out; the countenance became perfectly livid, and the pulse no longer perceptible. In this state the piece was cut out of the trachea, and still no evidence of life followed. A messenger was instantly dispatched for a catheter: in the mean time the heart had ceased to vibrate. Mr. Read (who assisted Mr. Tagert in the operation), on receipt of the instrument, immediately passed it through the nose, as far as the rima, while Mr. Tagert at the same instant pressed the cricoid cartilage back on the spine; Mr. Read blew down some air through the instrument, when the child immediately breathed, coughed up a quantity of bloody mucus, and thus life was saved, but only for a few days, as he died from extensive bronchitis, and symptoms of pneumonia, on the third day after the operation.

For the particulars of the following case I am also indebted to my friend, Mr. Tagert.

CASE X.—A female infant about three years old attempted to drink from a boiling coffee-pot, at about 1 o'clock, P. M., on the 15th February, 1839. It did not appear to have suffered much at the time, having played about and amused itself shortly after. In about two hours it complained of soreness about the throat: deglutition becoming very painful, she was brought to Mercer's Hospital about half past 4 o'clock, P. M. There was not much difficulty of breathing at that time. An emetic was administered. Dyspnœa soon set in and rapidly increased.

About half-past 7 o'clock, P. M., or three hours after admission, the breathing became most embarrassed, stridulous, and croupy; countenance livid; surface cold.

At 9 o'clock, P. M., Mr. Auchinleck found it necessary to perform tracheotomy; a small portion of the trachea was removed in the usual manner, and very little relief was afforded by the operation. She was put on small doses of calomel frequently repeated.

16th. Next morning respiration was most laborious, large quantities of adhesive mucus issued from the wound in the trachea; pulse rapid, and thready; the child lay in a semi-comatose state; eyes half open, but unconscious; fits of coughing most distressing; had occasional fits of collapse or sinking; was roused from these by administering small quantities of warm wine and water. A small tube was inserted into the trachea, and removed occasionally to clear away the mucus.

Died about 10 o'clock, P. M., suffocated by the copious mucous secretion, thirty-three hours from the period of having made the attempt to swallow the boiling coffee.

Mr. Tagert proceeds to remark, "whether any of the fluid got into the mouth it is difficult to say; perhaps the steam was inhaled during inspiration. The tongue, lips, and inside of the cheeks did not present any mark of injury."

An examination of the body could not be procured, the mother scarcely quitting the infant for a moment. However, the wound in the neck was enlarged and the larynx removed. The epiglottis greatly thickened, erect, and inflamed; the aryteno-epiglottidean folds thickened and œdematous; the opening into the glottis almost closed from sub-mucous effusion; the rima or chink of the glottis not engaged; no œdema here; upper part of the pharynx inflamed.

The following case I am also indebted to Mr. Tagert for, who was called on to assist Mr. Palmer; it exemplifies the inconvenience and bad consequences of carrying the incision too

low in the neck; and also the fatal results from enlarging the wound in the soft part after the trachea is opened.

CASE XI.—A child between two and three years old attempted to take water from the spout of a boiling kettle in the month of August, 1846.

Four hours afterwards, in consequence of its breathing becoming embarrassed, it was conveyed to Mercer's Hospital, when, on consultation, it was considered a proper case for the operation of tracheotomy; and accordingly Mr. Palmer opened the trachea, on which being laid bare, the upper portion of the thymus gland was seen moving up and down, so as to hide the trachea at each inspiration. This portion of the gland Mr. Palmer seized with a hook, and, passing a ligature round it, cut it off above the ligature; and then opened the trachea in the usual way. But now, observing that the opening thus made was valvular, in consequence of being drawn under cover of the deep fascia and muscles covering it, with a scalpel he enlarged the wound above, when, some vessel being divided, a quantity of blood passed into the trachea, and the patient instantly died on the table.

I could relate the particulars of another case which I was called to see by an apothecary in the neighbourhood of Ranelagh, where I found it necessary to open the trachea six hours after the patient had attempted to swallow the boiling water, and in this instance the operation was perfectly successful; but as it did not come under my observation in hospital, I forego entering into particulars.

Now that many of these cases recover under antiphlogistic treatment, without having recourse to the operation of tracheotomy, is well known to every surgeon. A number of examples I might adduce to prove this; one case may suffice.

CASE XII.—William Roach, aged three years and a half, residing in Windy Arbour, was admitted into Mercer's Hospital at 8 o'clock in the evening of the 8th December, 1842, in

consequence of having attempted to swallow boiling water from the spout of a kettle at 1 o'clock that day.

I saw him shortly after admission, and found him with short, stridulous, and croupy breathing; cough; difficult deglutition; face flushed, but not bloated; pulse 100; no vesication visible on the inside of the cheeks or mouth; could answer questions, but in a hoarse voice.

It appears that on receipt of the scald he cried lustily, and then slept for three hours. On his awaking, his breathing being hurried and croupy, his mother became alarmed, and hastened with him to hospital. As this case did not appear very urgent, I had an emetic administered, and two leeches applied to the upper bone of the sternum, and left directions with the resident pupil to report if he got worse.

However, the above measures gave great relief to all the symptoms, for after the action of the emetic he was enabled to drink pretty freely, and without much pain being experienced in swallowing. In the evening he was ordered a grain of calomel every third hour. The following morning he had some slight cough, which a small blister relieved, and on the next day he was dismissed cured.

This case shews the benefit derivable from emetics in these instances, in unloading the vessels and clearing the bronchial tubes of mucus. Had this effect not been produced, and the symptoms thereby relieved, the operation should have been had recourse to.

The following case fully proves the necessity of not permitting a child to be exposed to cold or the use of improper diet before the symptoms are completely combated.

CASE XIII.—John D'Arcy, aged two years, was admitted into Mercer's Hospital on the 17th November, 1845, in consequence of having attempted to swallow boiling water from the spout of a kettle on the evening before, after which he screamed violently for some time, then ran about for fully four hours as if nothing had happened. About one hour after he was placed

in bed his breathing became hurried and difficult, for which his mother sought the advice of an apothecary, who gave him some medicine, but as the symptoms were not relieved she conveyed him to hospital. His breathing was then a little stridulous and hurried; face perfectly natural; pulse about 80; vesications visible on the soft palate; epiglottis a little swollen and erect; did not throw his head back; could swallow with difficulty. An emetic was instantly administered, two leeches applied to the upper bone of the sternum, and two grains of calomel given every third hour.

18th. This morning he was much better; breathing still stridulous; pulse 80; chest clear on percussion; face natural; deglutition less difficult; calls for cold water. To continue the powders at longer intervals.

19th. This morning he is so much better his mother insists on removing him from the hospital, although strongly advised not to do so.

20th. Yesterday his mother brought him home, gave him wine, and too much food: this day she brought him back again, with extensive bronchitis and laryngitis. The idea of tracheotomy is now quite out of the question, as deposition of lymph is suspected to exist in the trachea. He was bled locally and generally, blistered, calomel and tartarized antimony given, but all to no purpose, as he died the following morning.

Autopsy, fourteen hours after death.—Body plump; face swollen and livid; lungs congested, firm to the touch; no crepitation on pressure. The larynx being removed, the mucous membrane covering the epiglottis was found thickened, and covered with lymph, the rima in the same condition, and the whole canal, as far as its bifurcation, lined by false membrane.

This child would, in all probability, have recovered completely, had it not been removed from the hospital. It also proves how the symptoms can be subdued by measures which sometimes fail in other cases apparently similar; for had the usual symptoms set in shortly after admission on the first occa-

sion, the operation should have been performed; but dissection proved that, had it been had recourse to on its second admission, it would have been worse than useless, as genuine croup had set in.

The foregoing cases present many points of practical importance for the surgeon's serious consideration. In the first place, we should inquire is the operation of tracheotomy ever necessary to be performed in these cases; and, if so, what are the circumstances that call for its adoption? in the second place, do such cases ever get well without it? and, lastly, proceed to the consideration of the instruments required, the circumstances to be attended to in its performance, and the subsequent treatment to be adopted.

In all cases where boiling water has been taken, or attempted to have been taken, into the mouth, the danger at all times is imminent; for although the little patients seem to suffer comparatively very little for the first few hours, still symptoms of grave importance set in, sooner or later, which, if not combated by appropriate treatment, will either kill the patient or call for the operation of tracheotomy. The operation is, therefore, I think, imperatively called for, when the usual remedies, such as emetics, leeches, and the application of heat to the surface, &c., fail in allaying the urgent symptoms. But when the breathing becomes stridulous and croupy, or amounting to a mere pant, from spasm of the glottis, the pulse quick and small, the temperature of the body diminished, the head drawn back, face congested, eyes half open, inclination to coma, and difficult deglutition, I should, on the first accession of these symptoms, at once be inclined to operate; but when these have lasted a sufficient length of time to cause complete coma, or if bronchitis or laryngitis has set in, then, I think, it will be found useless; for when patients under such circumstances die after operation, provided it is not produced by the shock inflicted on the nervous system, it is from the accession of bronchitis, laryngitis, or pneumonia; consequently, if any

of these exist before we operate, we can entertain but small hopes of recovery.

In reply to the second proposition,—whether they ever get well without the operation being performed?—I need not dwell upon it, as we all know they do, in proof of which I have adduced one case out of many that have come under my observation. But the fact is so well known to all practitioners, I shall dismiss the further consideration of it, and proceed to our last proposition, viz., the instruments required, the circumstances to be attended to in its performance, and the subsequent treatment to be adopted. The instruments necessary to be provided with, in addition to the ordinary scalpel, scissors, forceps, and retractor, are, a trachea pipe, a gum-elastic catheter, and a small double hook; the latter I think a much more convenient instrument for laying hold of the trachea than a single one, or any other contrivance. The circumstances to be attended to in its performance are:

1st. The operator should bear in mind that his cutaneous incision be in the median line, otherwise the opening into the trachea will not correspond to it, a valvular opening being the result.

2nd. Great caution is required in avoiding the thyroid veins, which, as well as the middle thyroid artery, constantly encroach on the median line.

3rd. Great caution is required that the incision be not carried too low in the neck, thereby opening the fascia that is attached to the sternum, which helps to close the upper opening of the thorax, like a lesser diaphragm, whereby there is not only danger of wounding the vena innominata, but also great annoyance may be experienced in the subsequent steps of the operation, by the elevation and depression of the thymus gland.

4th. We should never open the trachea till we are certain that we have laid open the deep fascia that covers it, or we will surely have a valvular opening.

5th. The operator should be prepared, in case of the super-

vention of spasm, when the trachea is seized by the hook, to cut the piece out rapidly; or should the patient not breathe instantly after this has been done, the surgeon must lose no time in passing a gum-elastic catheter into the trachea and inflating the lungs.

6th. We should never enlarge the wound in the soft parts after the trachea has been opened, lest a flow of blood should pass into it, and cause the instant death of the patient.

7th. Blood may pass into the trachea the instant the opening is made into it, thereby producing violent cough, or even to such an amount as to asphyxiate the patient. In either case the elastic catheter must be had recourse to, and life may be saved.

8th. Should a lymphatic gland present itself along the course of the incision, and tend to obstruct the passage of air into the trachea, it may be removed without danger.

The subsequent treatment to be adopted is simple. Immediately after the operation, as the patient is generally in a more or less collapsed state, we should give small doses of warm wine and water, or camphor mixture; we ought also to place him in a warm bed with hot jars around him, and have a warm temperature kept up in the room.

When reaction sets in, small and repeated doses of calomel, in combination with James's Powder, ipecacuanha, or tartar emetic should be given. If diarrhœa occurs, hydragryrum cum cretâ, with Dover's Powder, should be administered; or, if this will not check it, we may try small anodyne injections. But the principal danger to be dreaded, and which is chiefly to be guarded against and combated, is that arising from bronchitis, laryngitis, or pneumonia; and I know nothing more likely to keep off their approach than inhaling a warm atmosphere, in conjunction with the use of calomel. If, however, any of these symptoms set in, they must be met by the ordinary measures used in such cases.

ART. VI.—*Contributions to Aural Surgery*, Part III.—*Inflammatory Affections of the Membrana Tympani and Middle Ear*. By W. R. WILDE, M. R. I. A., F. R. C. S., Surgeon to St. Mark's Hospital.

(Continued from vol. iv. p. 426.)

II. SUBACUTE INFLAMMATION OF THE TYMPANUM AND ITS MEMBRANES.

BESIDES the acute form of the disease, attended by violent pain, &c., described in my former communication, there is a description of subacute inflammation of the membrana tympani, with which I have been long familiar, and which, although perfectly painless, is equally destructive to hearing. It generally appears in persons between 15 and 30. The first symptom to which the patient's attention is directed is deafness, which has appeared rather suddenly. It may be, but is not always, accompanied by tinnitus. The nature of the disease is only to be learned by a careful inspection of the membrane, which, if we see the disease early, is always of a pink colour, of a tint somewhat paler than that of the monthly rose. Through this, dispersed in various directions, we observe in some cases a few long, tortuous vessels. The transparency and polish of the membrane are seldom much affected at first. The auditory canal does not usually exhibit signs of disease, but the ceruminous secretion is arrested. Generally speaking, there are no constitutional symptoms present, and when tinnitus is an accompaniment, it is usually of a very light character, resembling a slight buzzing or singing. If allowed to proceed unchecked, the membrane becomes thickened and remarkably opaque, from lymph deposits, and the deafness which ensues is of a most irremedial nature. Collapse or drawing inwards of the tympanal membrane does not usually follow this form of the affection, but

ulceration, even to perforation of the membrane of the drum, is not an uncommon attendant upon it.

This disease is slow in its progress, and requires very careful watching. Cases of this nature have been, I feel convinced, repeatedly treated as “nervous deafness.” I am inclined to think that it is a true myringitis, in which the inflammation is seated in the fibrous layer of the membrane. In this disease mercury is just as necessary as in that already detailed; it should, however, be given after a different fashion: to be effectual, it must be slowly introduced into the system, so as to produce a steady and gradual effect. The mouth should be kept sore until there is a decided improvement both in the vascularity and in the hearing, or until all hope of restoration has been abandoned, or other circumstances induce us to relinquish this mode of treatment. After the constitution has been fully affected by the mineral, the bichloride, given in doses from the sixteenth to the eighth of a grain, dissolved in proof spirits, and taken in half an ounce of the cold infusion of bark, and a scruple or half a drachm of Huxham’s tincture, three times a day, will be found highly efficacious. The preparations of iodine are also, in the advanced stage of the disease, worthy of trial; but I do not think that the preparations and combinations of iron produce in aural inflammations the same benefit which they do in constitutions labouring under ophthalmic affections of a like character.

Counter-irritation by means of tartar emetic ointment(*a*), or the continued application of Albespeyre’s paper, keeping up a discharge from the integuments over the mastoid process,

(*a*) Great care should be taken in applying this ointment behind the ears, as it is very apt to produce large unhealthy-looking pustules, not unlike the disease we know as “burned holes” (*pemphigus gangrenosus*), particularly if allowed to spread over the back of the auricle. To make it act more speedily it may be mixed with a little powdered white sugar, and spread upon a piece of lint, which, after the part has been rubbed with the ointment, is to be applied in the form of a plaster, and retained till the pustules are produced.

will hasten the cure. Should the constitution require it, change of air, removal to the sea, and generous living, &c., must be had recourse to.

To relieve tinnitus aurium, after the inflammatory action has been subdued, or the original disease which produced it has subsided, and particularly in cases where we find this symptom present without any apparent lesion of the parts which we are able to inspect, I have latterly found the preparations of the *Arnica montana* of decided benefit; indeed it is the only medicine with which I am acquainted that seems to possess a specific power over this annoying and usually most intractable complaint. The preparation I find most efficacious is the tincture both of the flowers and leaves, of which the patient should commence by taking fifteen drops in a table-spoonful of the infusion of Arnica, and a little of some cordial tincture three times a day. After a few days the dose should be increased one or two drops daily, till it reaches thirty, or even more, unless headach or giddiness be produced, when we should at once lessen the dose, or omit the medicine altogether for a short time (*a*). The state of the bowels should be carefully attended to during the administration of this drug.

So long as any vascularity or recent deposit exists in the membrana tympani, notwithstanding manifest improvement of the hearing, we should not desist from employing means to remove it, as these cases are of a most insidious and protracted character. When ulceration exists, we should touch the part

(*a*) The following is the formula for the tincture prepared for me by Messrs. Bewley and Evans. One ounce and a half of the *flowers* to a pint of rectified spirit of wine; macerate for fourteen days and strain; or, for the tincture of the *leaves*, the same quantity infused for a similar period in proof spirits. In prescribing these I usually order them in equal proportions.

Dr. Neligan says: "This tincture may be readily prepared by percolation, having previously macerated the flowers with a little of the spirit for twenty-four hours; or it may be prepared with the cut and bruised root in the proportion of ℥ii. of the root to Oj. of rectified spirit. Dose, f. 3 ss. to f. 3ii. "—*Medicines and their Uses*. Second Edition.

daily with a solution of lunar caustic, applied with a fine brush. The same mode of treatment is applicable to perforation of the membrane, and I have latterly been astonished at the number of cases in which, under this treatment, or touching the edge of the perforation with a fine point of the solid nitrate of silver, applied upon a *porte-caustique*, together with proper constitutional treatment, these apertures have healed up. After an extensive trial of various other escharotics, such as the nitrate of mercury, and the sulphate and nitrate of copper, I find the preparations of silver the best.

In all the inflammations of the middle and external ear, the secretion of cerumen is arrested, and it is long after the disease has been relieved, that the ceruminous glands resume their healthy functions, the auditory passage remaining dry and its lining scaly: or the wax which is produced being insufficient in quantity, of a very dark colour, and soon becoming hard and inspissated, &c. This deficiency of cerumen, which is but a symptom, is often set down as a disease, and various applications of ox-gall, creasote, &c., have been recommended to restore it. I find, however, that nothing produces a healthy action in the parts so soon, while, at the same time, it immediately supplies the best artificial succedaneum, as the *unguentum citrinum fuscum*, the soft brown citrine ointment, applied to the auditory passage in a melted state with a soft brush(a).

(a) There is no other medicine in the whole materia medica so frequently prescribed by the practitioner, which presents the same differences, both in appearance and effects, as citrine ointment. According to the ordinary method of preparing it, as directed in any of the Pharmacopœias of the three kingdoms, it is impossible to procure it alike in any four different establishments. It is found of all shades of colour,—straw-coloured, grey, green, yellow, orange,—and of every degree of consistence, dry and hard, or soft and pasty. Many apothecaries in Dublin do not adhere to the pharmacopœial formula, but make it up according to a form of their own; some use fresh butter instead of lard and oil, and others different kinds of oil, as from habit or experience they find best. Some of these, however, are liable to the objections already stated. Moreover, if mixed with almond oil, as in diluting it into an eye-salve, although it looks yellow for a day or two, it soon becomes

CASE IV.—*Subacute Tympanitis with Paralysis of the Portio Dura.*

Patrick Rooney, aged 35, suffered from typhus fever about fourteen years ago, during which he had violent pain in his left ear, accompanied by a discharge which has continued ever since. He is quite deaf upon this side, and upon examination the membrana tympani is found to be perforated at its anterior portion, and the whole membrane, auditory passage, and middle ear as far as can be seen through the aperture, are of a bright florid red; the ossicula, however, remain *in situ*. The hearing in his right ear remained perfect until the beginning of May last, when he began to perceive a deafness upon that side, which after a few days was accompanied by a most distressing noise resembling “the escape of steam;” he had also a rolling noise in his head, but no pain in either head or ear. He applied for

green, and gets a very unpleasant smell, no matter whether covered up or not, and in this state it is often very irritating. On explaining my difficulties, some two or three years ago, to Mr. Donovan, he procured me a citrine ointment of a very dark orange or brown colour, soft, perfectly and equally smooth, and which does not alter in any way by keeping, by exposure to light, by mixing with oils, or even by being gently heated to the point of fluidity: and it never acquires an acid smell. Its therapeutic effects I have had long experience of, and they are decidedly superior to those of the ointment in common use;—Mr. Donovan has not made known its constituents, nor its mode of preparation. Mr. Nicholls has made for me a citrine ointment precisely similar in colour, smell, consistence, and effects. He informs me that he has used rape oil instead of olive oil, and has never let the heat employed during the preparation exceed 200°. Mr. John Evans has employed cod-liver oil, and also seal oil, and the preparations thus produced are exceedingly elegant and useful ones. Messrs. Bewley have obtained for me a brown citrine ointment somewhat like those already mentioned, and they inform me that it is by using only the very purest olive oil. I find this ointment a decided improvement on the old preparation, and its composition should be investigated by those engaged in the preparation of medicines and pharmacopœias. When about to be used, it should be melted to the consistence of cream by placing the vessel containing it in hot water. It forms an admirable application in ophthalmia tarsi.

medical advice, and had "drops" of an irritating nature poured into the meatus. Not having derived benefit from these, he applied at St. Mark's Hospital on the 29th of May, 1847. The noise and deafness were as already described; in addition he suffered from headach and pain in his face.

The right side of the face was then completely paralyzed, presenting the usual appearance of fulness and smoothness; the mouth drawn to the left side, the eye staring from inability to close the lids, the tears flowing over upon the cheek, the nostril collapsed, the colour of the skin somewhat heightened, and its temperature considerably raised beyond that of the opposite side. The auditory canal was dry and red; the tympanal membrane had completely lost its polish, and presented an uniform pink appearance, not unlike blotting-paper. He had no pain anywhere around or about the ear, nor could pain or soreness be produced upon making pressure in any of the usual situations. He was able to inflate the tympanum; but could not hear the watch placed to the ear or any part of the head, and could with great difficulty distinguish the voice.

He was slightly mercurialized by the use of the hydrargyrum cum cretâ with cicuta; leeches were applied several times round the meatus, and small blisters over the mastoid process. As soon as his mouth became sore (in about ten days), the hearing returned, so that he could hear ordinary conversation very well; the vascularity of the membrane lessened considerably, and the noise decreased. On the 15th of June the paralysis had quite disappeared; he was then obliged to discontinue his attendance at the hospital, but was given some of the iodine and hydriodate of potash solution to take occasionally. Wishing to learn the result of this case, I sent for the patient, and again examined him upon the 10th of September last(a). He had

(a) I would strongly recommend those engaged in hospital or dispensary practice in a large city, to make a note of the address of any patient whose case is interesting, in order that they may be able to learn the final result of such.

no return of the paralysis; the hearing remained much the same; the meatus still red; the membrana tympani, over the head and handle of the malleus, was bright red; the rest of the membrane, with the exception of one clear spot in front of the point of the malleus, presented a dull, pearly hue; there were no folds observable in it, but a very opaque rim, like a broad arcus senilis, round its lower attachment.

The paralysis in this case seemed to have been caused by the inflammation in the ear extending to the portio dura. Now may not many of those cases of facial paralysis, so frequently met with, and some of which are apparently the result of cold, have been produced by a like affection? The state of the drum in all such cases should be accurately investigated.

CASE V.—*Sub-acute Myringitis; Mercurial Treatment; Recovery.*

The following case affords a good example of the subacute form of the disease, of the inattention paid to the early symptoms of deafness by practitioners in general, and the efficacy of anti-phlogistic treatment. As the subject of this case, Mr. S., aged 19, is a young gentleman of very great intelligence, I give the history of his case, as far as possible, in the words of the narrative with which he has furnished me. “About the year 1836 I felt symptoms of deafness in both my ears for the first time, but on the application of blisters these symptoms passed away. From being but a child at the time, I have an imperfect recollection of the peculiar symptoms of my case. Again, in 1840, I became quite deaf in my right ear: this I mentioned to our family physician, but for some time he treated it as a joke, telling me merely that I was idle and wished for some holidays; however, on my frequently asserting that I really *was* deaf, he directed me to syringe my ear night and morning, and afterwards he dropped some liquid into it which he prescribed for me, but he did not make any particular examination of my ear. I continued to follow his advice for some weeks, but without any beneficial effect. I was then advised to get some

rusty bacon, cut it into small shreds, and put one, morning and evening into my ear,—but with no better success(*a*). At last I applied a blister behind my ear, and kept it open for six months. This treatment, which may, and very probably would, as experience has since shewn me, have been successful, had it been resorted to in the first instance, was then of no avail. On two subsequent occasions, about Christmas, 1841, and July, 1842, I had an ear-ache in that ear, and the only application which gave me relief was dropping warm laudanum into it(*b*). At the close of September, 1845, I felt my left ear one morning as if it were stopped, and perceived a buzzing sound in it, such as one feels on applying a sea-shell to it. This noise was increased at night when I lay in bed; it then resembled a constant, loud hissing. I became very deaf, and my difficulty of hearing increased daily; I also experienced an uneasy sensation, and a feeling of stuffing, in this ear, but no pain.”

On the 21st of the November following I first saw this young gentleman. I found, in addition to the symptoms already described, a bright pink hue diffused over the left tympanal membrane, which, however, had not lost its polish, nor become opaque. He was with difficulty able to inflate the drum, and when he did so, the stream of air caused a slight squeeling and a mucous gurgling in the middle ear. The external meatus was dry, devoid of cerumen, and somewhat redder than natural. The throat, however, was normal. It was evidently a case of subacute inflammation of the membrana

(*a*) This is a very popular remedy in Ireland, and is frequently prescribed by medical practitioners. In cases of deafness, unaccompanied by inflammation, and solely the result of a deficiency of cerumen (very rare cases, by the way) it is innoxious, and may be effectual, but in no other case that I am aware of is it at all applicable.

(*b*) Laudanum dropped into the ear is one of the most popular remedies for ear-ache, and in many instances it certainly affords relief. We do not object to its application as a means of lessening pain, but we do as a remedial agent, while the *cause* of the pain is uninvestigated, and not treated according to the established rules for lessening inflammation, &c.

tympani, of the mucous membrane lining the cavity of the drum, and the Eustachian tube: with mucous engorgement of the middle ear. Upon the right side the membrana tympani was found thickened and opaque, and two or three large, red vessels spread over its surface, but on this side the air passed up with facility. Six leeches were immediately applied to the left ear, three round the meatus and three in front of the tragus, and warm stupes and fomentations prescribed. Upon the 29th his symptoms remained unabated and the appearances unaltered, so I immediately put him on the use of mercury, at the same time that a repetition of the leeches round the meatus, and the application of blisters over the mastoid process, was had recourse to. As soon as the mouth became slightly affected I observed that the vascularity of the right ear,—the one originally affected,—was very much lessened, and I then recommended the application of leeches and blisters to that also, and had the satisfaction to find that the hearing began to improve gradually on this as well as the left side.

As Mr. S. improved daily the mercury was omitted, and he commenced the use of bark and hydriodate of potash. Towards the end of December he was so much improved that I discontinued my attendance, and I lost sight of him for a short time. In the beginning of January, however, he again applied to me: worse than ever. The weather had been remarkably damp and unfavourable; he was much exposed to its influence, and had caught cold, which, to use his own expression, had “pitched in his ears.” He was then so deaf that he could with great difficulty understand what was said to him, although addressed in a distinct and loud voice. The vascularity had returned in the left, and partially in the right ear, and the mucous engorgement of the tympanal cavities was more manifest. The same course had to be pursued as on the former occasion; he was confined to the house for a month, and kept under the gentle influence of mercury for the last three weeks of that time. I desired him to try occasionally to press the air into the drums,

particularly when blowing the nose ; and as the inflammatory condition subsided he was enabled to do this with greater facility. Each time the air passed his hearing was improved. At the end of a month the mercury was discontinued and the leeching given up. Small blisters were kept open behind the ears, and the use of bark and hydriodate of potash was persisted in for some weeks longer. I examined this gentleman in November last, and found that all trace of disease had been removed from the left ear, and that the tympanal membrane of the right was much thinner, and much less vascular and opaque, than when I first saw him in 1845. His hearing is perfect upon the left side, and very much improved on the right, the hearing distance being increased on that side from three to fourteen inches.

In the foregoing case we have a good example in the right ear (which, when I first saw it, was in the condition of chronic inflammation, to be described in the next section) of the effects of neglect, and also of the efficacy of the antiphlogistic treatment, not only in the removal of recent disease, but in the improvement of an affection of several years' standing.

I could enumerate several other well-marked cases of this disease, were it necessary, all presenting the same appearances, and cured by the same means, but in very few has treatment been attended with the same happy results in the ear previously affected as in this case. Generally only one ear is affected at a time, but sooner or later the other usually becomes engaged. I feel convinced that many cases of incurable deafness have arisen from this disease.

III. CHRONIC MYRINGITIS, WITH OR WITHOUT INFLAMMATION OF THE TYMPANUM.

By referring to the table of aural diseases published in the former part of this Essay (vol. iv. page 392), it will be seen that this is a very frequent cause of deafness, eighty-two cases having been recorded out of 709, or nearly one in nine of the whole. Indeed, I am inclined to think that it is even of more frequent occurrence ; as although many cases present them-

selves as such in the beginning of the deafness, the appearances of chronic inflammation of the drum are to be found as the sequelæ of nearly all the other forms of inflammation, in the same way that we find chronic ophthalmia so frequent a consequence of the various acute forms of inflammation of the eye. This disease presents under two forms; the first, a perfectly painless deafness; the other attended by paroxysms of violent pain, coming on at intervals, between which the patient is perfectly free from all uneasiness. The latter is much more common among females from 15 to 30, and is at times accompanied by irregularities of the uterine functions. The appearance of the membrana tympani is too peculiar to be mistaken. It presents a general thickening and opacity, particularly of its lower portion, besides which there is almost invariably a number of spots, about the size of pin-heads, of greater density than the rest, and of a pearly lustre, studded over the surface of the membrane. In many cases it presents the appearance of crumpled parchment. During the quiescent periods, we only remark a few straggling vessels, carrying red blood, spreading over the surface of the membrane, and, for the most part, coursing from above downwards, parallel with the handle of the hammer. Upon any provocation, however, such as cold, or other exciting causes, the membrane will, in a few hours, and often without any increase of pain, become of an uniform dark red colour, precisely like *pannus* of the cornea, a disease of which it is the manifest analogue. The greater the amount of thickening and opacity, the less will be the quantity of vascularity and redness which the membrane is capable of assuming, as we perceive in cases of dense opacity of the cornea, owing, no doubt, to the greater quantity of deposit obstructing the flow of red blood, by diminishing, and, perhaps, also obliterating the caliber of the vessels.

Cases of this kind are often of many years' standing, and many have, I am convinced, been treated as instances of "nervous deafness." The following is no imaginary case, but one of constant occurrence.

A lady, aged between 30 and 40, consults a practitioner in aural surgery. She is very deaf, speaks in a loud, inharmonious voice, and has suffered from noise in her ears, of all descriptions, for several years. She usually prefaces the detail of her symptoms (which is generally very long and verbose) by stating that she does not think much can be done for her, for that she is labouring under *nervous deafness*, and is, therefore, incurable. She has a great objection either to be questioned or to have her ears examined until she has made a full statement of her case ; and as she has had a great variety of opinions, and has used all manner of remedies, she is tediously accurate in her account. She states that she has been deaf from a very early period ; that at first her deafness was attributed to inattention, and endeavoured to be remedied by the means thought most advisable by her guardians and governesses ; that, her deafness increasing, she was brought, when about ten or twelve years of age, to an eminent practitioner, who, after a few casual inquiries, told her friends not to mind it, for that she would certainly grow out of it as she grew up, and that probably all her deafness would disappear about the period of puberty ; but that she might rub *eau de Cologne* on the jaw occasionally ! With the exception of sea-bathing, and means calculated to improve the state of her general health, no other remedies were tried, and no other advice sought for two or three years ; when, not finding the hearing improved, but gradually becoming worse, and the tinnitus increasing as she grew up, a special aurist was consulted, who stated the disease to be entirely local, and curable by local remedies alone. During the next few years various means were had recourse to ; catheterism of the Eustachian tube was employed for several months, the tympanum constantly washed out, and various liquids and gases injected into it, but without effect. Counter-irritation was next employed, with issues in the arm and setons in the neck, and a long and fair trial given to their powers. It was next proposed to remove the tonsils,—and in several such cases

they *have been* removed, or, at least, portions of them. Still the disease progressed. Drops, oils, and liniments, some of the most caustic nature, were without mercy, and without discrimination, poured into the external meatus, by those who

“ Stole

With juice of cursed hebenon in a vial,
And in the porches of *her* ears did pour
The leperous distilment.”

Broken down in health, wearied by the variety of opinions and the multiplicity of applications, an eminent physician was then consulted, who, having heard the history of the case, advised the cessation of all local remedies, and recommended tonics and antispasmodics, together with shower-baths, change of air, and sea-bathing: stating at the same time that the disease was entirely constitutional, and of a *nervous* character. And certainly by this time, from hope deferred (for many specious promises of cure had been made), from the increase of the tinnitus, and from the effects of the long and severe treatment, the patient had become remarkably nervous and irritable, brooding over her malady, and rendered unhappy and discontented by being unable to take part in any general conversation.

Some years now passed without her doing anything; she had not become much worse, but she certainly had not improved. Owing to some new theory being started, at the solicitation of friends who had been relieved of some curable form of deafness, or from the celebrity of some particular practitioner, she was again induced to seek relief; and having arrived at the metropolis, she took the round of the doctors and aurists. Some proposed perforation of the drum, others recommended travel; the honest prescribed nothing; the quack proffered his panacea, or offered to sell his peculiar acoustic instrument, and backed the recommendation of its merits by the sign manual of some of the judges of the land(*a*). The homœo-

(*a*) In a window in the Strand, not far from Somerset House, may be seen, framed and glazed, a certificate from one of the Chief Justices of Eng-

pathists and hydropathists were each consulted, and the merits of their systems tested; the spas of England and the Badens of Germany were visited, and their efficacies tried. Electricity, galvanism, and electro-magnetism, were also had recourse to, but in vain. The opinions of those whom she had consulted were as various as the remedies they employed: but the greater number believed it to be a constitutional or nervous affection. Latterly she had been content to look out for "cures" among the newspaper advertisements, and of these she possessed a large number in her portfolio.

Of such cases, scarcely differing in a shade, I possess the notes of several. In many of these the following may be gleaned upon a careful examination. The *membrana tympani* will be found thickened, opaque, and slightly vascular, and sometimes very much collapsed or drawn inward towards the inner wall of the tympanum, so that the handle of the hammer forms a manifest projection. The membrane has also lost its polish and become of a dull pearl colour. On questioning the patient closely, it is acknowledged that constant attacks of *ear-ache* were suffered several years previously, particularly in winter, and that such attacks were often preceded or accompanied by stuffing in the nose, and symptoms of catarrh, and were generally induced by cold, to avoid which the head was usually kept warmly muffled during such seasons.

In such a case our art at present does not offer much hope. The whole train of symptoms are evidently the result of slow chronic inflammation, affecting, in all probability, the lining of the cavity, as well as the membrane of the drum. The only means which can with safety be recommended at this period is the application of a solution of lunar caustic, applied with a camel's hair brush, every third or fourth day, upon the surface of the opaque membrane, while it is fully exposed to view, and should there be much vascularity present, the application

land, lauding, and recommending to all whom it may concern, a particular form of ear trumpet!

of a few leeches as far in as possible round the meatus, at least twice a week. In a few cases the Arnica will assist to remove the tinnitus; but it is not so efficacious in this as in more recent forms of the affection.

In the cases of periodic pain, with a higher degree and more generally diffused vascularity, the application of leeches, applied every second or third day, will be found most efficacious; at the same time that the patient should be brought under the gentle influence of mercury, and kept so for at least a month. Under such treatment, if the case is not of too long standing, the hearing will often be restored, and all the symptoms of pain and tinnitus may be removed. As the symptoms improve, the membrane will clear generally, but in most cases spots of opacity remain indelible. In applying the solution of nitrate of silver with a fine brush, considerable caution and dexterity is required, as the membrane will sometimes present a small perforation the next day if it has been rubbed too hard; and although I have always seen such perforations heal readily, it is an accident which should be avoided. By this application scales of membrane peel off the surface of the part, and leave it thinner and more transparent than before.

There is a form of deafness with which I have been long familiar, which may be the result of some form of inflammation in the membrane of the drum. In such cases, upon bringing the external membrane into view, we do not observe any general thickening or opacity of it, or any apparent alteration of its texture, but a crescent-shaped opacity, about a line broad and three lines long, of a yellow colour, occupies the lower and usually the back portion of the membrane, with a tolerably defined edge, and rather rough upon its surface, closely resembling the atheromatous deposits which occur in the coats of arteries. It is quite gritty, and generally more insensible than the rest of the membrane. It differs from the ordinary opacity, the effect of inflammation, in the surrounding membrane being apparently free from disease, in its almost invariable seat, its

yellowish colour and well defined edge, and in its having a portion of unaffected membrane between it and the bony attachment of the membrana tympani; whereas, as I have already remarked, the opacity which results from the ordinary form of inflammation, generally increases in density around its osseocartilaginous attachment. By a very slow and gradual process this disease spreads over the greater portion of the membrane, and produces permanent deafness. I am not aware of any remedy for it.

In some instances I have observed a manifest granular state of the membrane, not unlike the surface of a half ripe raspberry, the intervening portions between the reddish elevations being thickened and opaque, but unattended by discharge. In these cases I have procured an uniform thinning and clearing of the membrane, by the occasional application of a fine point of nitrate of silver; but this requires very great care, and should be persevered in for a great length of time, at least two months; it should, if possible, be applied so lightly as not to induce a discharge. Many of those cases are the result of long continued otorrhœa, but which, having healed, has left the membrane in this condition. It must be borne in mind that I am not now describing that form of chronic inflammation which is the ordinary attendant on otorrhœa, and which is the affection to which writers have given the name of "chronic inflammation of the membrana tympani." This disease, which I have been describing, may be the result of any form of inflammation, specific or otherwise.

In cases of permanent thickening and opacity of the membrana tympani, which have resisted all efforts at absorption and thinning, are we justified in performing perforation? I believe in very few cases indeed will it be found efficacious, because the opacity which we *do* see is but a portion of the general thickening and disorganization of the investing membrane of the middle ear, perhaps that of the labyrinth also, which we *do not* see. It may, however, be tried without injury in some

cases, but it requires very great caution and dexterity indeed in its performance ; and, as irreparable mischief has at times proceeded from its being done in a rough or clumsy manner, I beg to offer a few observations on the safest method of performing the operation of perforation. I wholly discard all the instruments in the shape of punches, trocars, and complicated apparatuses for the removal of a portion of the membrane, of which several are described as those of Fabrizi, Himly, and others, and figured in works on aural surgery. First, because they all occupy so much space within the speculum that it is not possible, when they are introduced, to see accurately the point of the membrane which they are pressing upon, nor how much of it they are cutting ; secondly, by our not seeing accurately the surface on which we are working, it is scarcely possible to avoid injuring the malleus or the chorda tympani, or wounding the inner wall of the tympanum ; and, thirdly, because those with corkscrew points, which fix the membrane while the revolving punch cuts out the piece, are not only exceedingly painful, but dangerous, inasmuch as the slightest motion of the head during the operation would produce a degree of violence which might be at once destructive to this delicate membrane.

Having brought the membrane fairly within view, under bright, direct sun-light, I introduce this small, sickle-shaped



knife, with a double-cutting edge, and here figured of the natural size in the blade, but with the shaft and handle about two inches longer ; and having made the patient inflate the tympanum, so as to make the membrane tense, and pressed outward, I gently introduce the point of the knife into its lower, thin, vibrating portion, and, drawing it downwards and forwards, make a simple incision of the membrane, about a line and a half in length. So simple is this, and so little pain does it give, that the patient has often been unconscious of its performance until made aware of its completion by the air rushing out through the aperture. In about a minute a slight oozing of blood takes

place from the edges of the aperture, like that which follows a wound of the sclerotic with an ordinary broad cataract needle, and if left in this condition it would soon heal up ; therefore, a very fine probe, fixed in a handle, and slightly pointed with nitrate of silver by being immersed in the caustic when heated to fluidity, should be immediately passed down into the perforation, the edges of which are thereby cauterized and prevented adhering ; and this latter process should be repeated from time to time, as often as the wound shews an inclination to heal, and until we establish a sufficiently large elliptical opening(*a*).

IV. STRUMOUS INFLAMMATION.

This is a frequent affection in young persons, and, I believe, a very constant cause of deafness in after life. Its subjects are always from three or four years of age to 15 or 16. It

(*a*) In the month of March, 1846, Dr. Butcher, of this city, read a paper before the Surgical Society of Ireland, on the subject of Perforation of the Membrana Tympani, with a view of shewing the ill consequences resulting from the performance of that operation. He related the cases of two young persons, a man and a woman, in both of whom it would appear that death ensued from puncturing the membrana tympani. Where fatal consequences are said to result from an operation which heretofore has proved, to say the least of it, innoxious, it is of very great importance that we should inquire into all the circumstances attending these cases, and the mode of performing the operation. The first instance was that of a young woman, deaf in both ears for four years, the only history of whose case is, that prior to this period she got a severe cold, with a swelling of the glands of the neck ; but what was the cause of her deafness, how it arose, what was the condition of the membrana tympani, why the operation was performed, in what manner, by whom, or with what instrument, we are not informed ; all we know is (I quote from Ranking's Abstract), that "catheterism of the Eustachian tube was performed and said to fail ; hence it was agreed upon that the membrane of the tympanum should be pierced, a small piece being drilled out of the membrane of the right side ;" but we are not told any other circumstances attending the operation, nor who witnessed it. Pain and other evidences of inflammation in the ear ensued, and profuse discharge took place, but what the condition of the ear was we know not. At the end of four months she died, with symptoms of diseased brain ; and upon examination it was found that the dura mater covering the petrous portion of the temporal bone was roughened

chiefly attacks the light-haired, fair-skinned, blue-eyed, and those who exhibit well marked evidences of a scrofulous constitution. Its first symptom is that of deafness, generally attributed to inattention: scarcely a fortnight passes that I do not see a boy or a girl, from ten to fifteen years of age, from some of the public schools, who, having been deaf for the two or three months previous, had been constantly reprimanded for inattention.

Upon examination, however, the tympanal membrane will be found of an uniform pinkish hue, but without either thickening or opacity, at least in the early stages; the auditory passage is dry, but seldom red. There is generally mucous engorgement of the cavity of the tympanum, with thickening

and softened in its texture, particularly near the internal auditory foramen. The membrana tympani was *entirely destroyed* and the lining membrane of the tympanum thickened and villous. Now, while we are totally in the dark as to what the condition of this case was originally, it is manifest that some great violence must have been done to the drum of the ear in the performance of the operation.

The second case is equally defective as to the cause of deafness or the appearance of the ear, although the *post mortem* examination was most interesting; all my friend, Dr. Butcher, states, is, that the man was deaf for twelve months previously, and that he then applied to a surgeon, and had his tympanum pierced, but why, or whether with a gimlet or a punch, a trochar or a probe, we are not informed. At first the hearing was improved, but then relapsed; after some time head symptoms set in, and the man died in the course of six weeks. Upon dissection, evident traces of inflammation of the brain and its membranes were discovered; the dura mater in particular, covering the auditory portion of the temporal bone, was rough and thickened, and a small abscess was discovered in the anterior globe of the brain, upon the same side on which the perforation was said to be performed. In this case, however, the original cause of the deafness, namely, a small tumour about the size of a bean, lying on the auditory portion of the seventh pair of nerves, was discovered. This was evidently a case in which the operation never should have been resorted to. Dr. Butcher deserves much credit for making those cases public, but it is much to be regretted that the statement of the surgeon who performed the operation was not obtained, nor the appearances of the ear, both before and after the operation, described.

and increased redness of the faucial mucous membrane,—a condition which, there can be little doubt, extends through the lining of the Eustachian tube into the middle ear. Enlargement of the tonsils is a very frequent accompaniment; and glandular swellings about the neck not an uncommon appearance in such cases. It is, generally speaking, a painless disease, and but seldom accompanied by tinnitus in the first instance; occasional crackling sensations, gurglings, and sometimes loud reports, are felt in the ear by patients themselves. Catarrh, stuffing in the nose, and great liability to cold in the head, are not unusual symptoms, or rather are attendants; there is no pain on pressure in or about the ear, the throat, the mouth, or the Eustachian tube. Strumous affections of the eyes are not an unfrequent complication, and these, particularly corneitis, which it very much resembles, and also strumous ophthalmia, sometimes alternate with the affections of the ear. The amount of deafness varies from a hearing distance of eight or ten inches with a watch, to total inability to hear a watch applied to any part of the head, or held between the teeth, or even to hear what is said in a loud and distinct voice; and, generally speaking, the amount of redness and vascularity presented in the membrane of the drum is in the ratio of the amount of deafness; but the latter is very variable, and would in many instances appear to be influenced by the state of the atmosphere, being greatest in damp, moist weather. In some cases the redness assumes a dark, damask rose colour, and then we may generally rest satisfied that the entire of the middle ear is engaged. Simple mucous discharge occurs occasionally, and otorrhœa succeeds in the more aggravated cases, as the disease advances, but it need not present at any period of the affection. The constitution is generally below the standard of health; the patient is usually pale, languid, and inactive, with, perhaps, slight loss of appetite, and some dryness of the skin.

The treatment in this disease should be chiefly directed to improve the condition of the constitution, and I know nothing

better for effecting this object than the use of bark in its various preparations, conjoined with iodide or bromide of potassium, and, when the inflammation is of a more active character, the chloride of mercury. In the advanced stages, and where there is much constitutional taint evident, with enlargement of the cervical glands, &c., the oleum jecoris will be found most effectual; but whichever of these are employed, it should be persisted in for a considerable length of time. This is a slow and tedious disease, lasting, even in the most favourable cases, for months, and is liable to relapse, and return again and again. Such patients should, therefore, be carefully watched, and their ears examined at least once a week, while any trace of inflammation remains. A dry, pure, country air will always be found beneficial, and perhaps I should add, a residence by the sea-shore in summer; but, as far as my experience extends, I have always found bathing in the open sea injurious. The warm bath occasionally, appears to be of use. As in cases of strumous ophthalmia, so in scrofulous myringitis, a leech or two may be required occasionally, although depletion is not generally indicated.

As the tongue is usually white and clammy, and the dejections often vitiated, small doses of chalk and mercury, combined with rhubarb and columba, given as alteratives every second or third night, will assist our other means. The diet should be light and highly nutritious, while all acid fruits, pickles, and ill-boiled or stale vegetables should be avoided. Constant open air exercise during the fine part of the day is very necessary; and when the weather is at all harsh, cold, or damp, a light covering should be worn over the ears, or small bits of cotton laid in the concha; but in the house, or in warm weather, these precautions are unnecessary; neither do I believe it at all efficacious to keep the head warmer than under ordinary circumstances.

Locally, counter-irritation will be found most effectual, and I find the vesicating liniments more efficacious in producing

the desired effect than the ordinary blistering. As such, the strong tincture of iodine, with acetum lyttæ, or croton oil and acetic acid conjoined with spirit of turpentine, oil of rosemary, and soap liniment, form very useful applications. The liniment should be rubbed over the mastoid process, and lower down, as far as the angle of the jaw, once or twice a day, until a slight vesicular rash is produced, when its use should be discontinued until the redness has disappeared, and then it should be reapplied as before. This counter-irritation should be kept up for a couple of months at least, varying the application as the parts become accustomed to any particular substance. Whatever substance is used, great care should be taken that it does not spread over the back of the auricle, which is very likely to become inflamed and greatly swollen by it; to prevent this a small fold of linen should be applied between the auricle and the mastoid process after each application. Should pain be experienced on pressing the tragus backwards with the finger, a single leech should be applied either on that spot or within the circle of the meatus, but, generally speaking, local depletion, as I have already stated, is less indicated in this than in any of the other inflammations of the drum or its membranes.

This is one of the diseases in which catheterism of the Eustachian tube is sometimes necessary, but, I believe, not so often as is generally resorted to. When the patient himself can readily pass a stream of air into the drum, by making a forced expiration, and at the same time holding the mouth and nose, whilst we apply our ear, or a stethoscope, to his external ear, so that we can distinctly perceive the full and natural inflation of the membrane, the introduction of a catheter, and the pressure of a stream of cold air, I believe to be not only unnecessary, but injurious. In cases, however, where mucus has collected in the cavity of the tympanum, catheterism should be resorted to occasionally, and even warm water, or some bland fluid, thrown up by means of a syringe, although I have my doubts as to the quantity of any fluid which can be thus driven

into the tympanum, in order to wash out mucus, pus, blood, or other extraneous substances. I am aware that in this opinion I differ from many distinguished authorities, and particularly from my friend, Mr. Pilcher, but it is, nevertheless, the result of considerable experience in the management of such cases. As I do not believe that the enlarged tonsils which often accompany this disease (as they do other strumous affections) are the *cause* of the deafness and the inflammation manifest in the drum and its membranes, I cannot recommend their removal, as has been proposed, and, I believe, acted on by others; but the application of a strong solution of a nitrate of silver to the back of the throat and fauces, and particularly towards the mouth of the Eustachian tube, by means of a piece of lint attached to the end of an aneurism needle, and applied as far up as possible behind the pillars of the soft palate, will be attended with beneficial results; and the use of astringent gargles should be persevered in during the continuance of the throat affection. If otorrhœa ensues, it is to be treated as I have recommended in my former essay upon that subject.

Gout may occasionally attack the tympanal membrane, but I have never seen a case of it myself; instances have been recorded of its exhibiting itself in the auricle. It is stated that gonorrhœa appears sometimes in the external auditory canal, but we still want careful examination and accurate observation to establish these cases.

V. SYPHILITIC INFLAMMATION.

Although practitioners who treat syphilitic diseases upon a large scale appear to be aware of the fact that venereal occasionally causes deafness, I cannot find any authority which has noticed the disease I am about to describe. The deafness which sometimes accompanies the secondary form of syphilis is generally believed to be caused by inflammation and ulceration extending from the throat through the Eustachian trumpet into the middle ear; such may, under certain circumstances, no

doubt, occur, and produce destructive inflammation and suppuration in this cavity, although I have never met with such a case myself, nor have I seen a well authenticated instance of it recorded. The English writers upon aural diseases have completely omitted syphilitic affections of the ear, as have also Kramer, Schmalz, and most of the continental writers, with the exception of Lincke. Martell Frank, the last writer of note, in his *Practische Anleitung*, enumerates two forms of the disease,—the first, external syphilitic otitis, in which secondary syphilitic ulcerations occur in the auditory canal, accompanied by other well-determined symptoms of the disease. These, however, are already known to the surgeon; they resemble the ulcerations which occur on the margins of the tarsal cartilages, and are sometimes the consequences of rupia seated upon the auricle, in the vicinity of the meatus. Under the head of otitis interna, he describes that form which is the result of lues, which, he says, arises either as a reflex of the disease in the ear itself, or is propagated through the Eustachian tube, as an extension of inflammatory action in the throat. He says this disease is accompanied by great pain, and often terminates in suppuration of the middle ear, destruction of the tympanal membrane and the ossicula, caries of the temporal bone, profuse otorrhœa, and exfoliation, &c. It is evident, however, from his description, that the disease of which he speaks is the ordinary suppuration of the cavity of the tympanum, with neglected otorrhœa and caries, and in no wise characterized by any peculiar syphilitic symptom.

Lincke's usual accuracy and observation seem to have deserted him when writing his chapter upon "Otitis Syphilitica;" for, while the affection now under consideration seems totally to have escaped his observation, he has, with most laborious German assiduity, collected together a multiplicity of authorities bearing upon the subject of what are supposed to be syphilitic diseases of the ear, but not one of which he himself has verified. Thus, he enumerates from the works of

Cullerien and Plisson chancres both on the auricle and in the meatus. He also gives a description of chancres, "if they arise near or *on* the membrana tympani!" but, like Frank, his descriptions are chiefly in reference to the syphilitic otorrhœa, the result of inflammation and ulceration extending from the throat or nose, a disease which it yet remains to be proved, by original observers (not system-makers or cyclopædia-compilers), at all exists.

While Lincke's work, *Handbuch der Theoretischen und Praktischen Ohrenheilkunde*, must ever remain a most valuable book of reference, it is high time for those who wish to advance the science of aural surgery to cast off the incubus of authority, and by patient investigation and originality of observation establish facts. Kramer deserves much more credit for omitting all notice of an affection which it is evident he had never himself observed, than those writers who, with equal want of knowledge, have endeavoured, by collecting out of a variety of obscure writers some ill-recorded cases, to establish an untenable theory.

The disease which I am about to describe is an inflammation of a specific character, occurring in the membranes of the tympanal cavity, but chiefly exhibited in the external membrane of the drum. All the cases I have seen of this affection occurred in young men, and generally those of fair complexions and blue eyes, who had had primary sores upon the genitals from six to twelve months previously, which sores were rather of a deceptive character, so that mercury was seldom given in the first instance, at least in a legitimate form. These sores were usually tedious in healing, and followed by papular eruptions and sore throats, for which mercury was, in most of the cases, taken irregularly. Buboës were not a common attendant, nor had iritis ensued in any of the instances of well-marked venereal myringitis which fell under my notice; but copper-coloured blotches, fissures, and ulcers of the tongue, with loss of strength and slight nocturnal pains,

generally speaking, existed previous to the aural affection, which should, I think, be ranked as a tertiary symptom. In four cases out of five of this disease which I witnessed last year, the disease appeared suddenly, as an eruption was fading off; in the fifth it came on at a later period, and was accompanied by loss of hair; in all it appeared in the upper or middle ranks of life. In some cases there is at first a sensation of fulness in the head, and often vertigo upon stooping or rising up suddenly, and the patients have usually a feeling of fulness within the ear; but in no instance have I seen it accompanied by acute pain, in which circumstances it resembles the subacute form of inflammation already described at page 83, but upon inspection the amount of redness and vascularity will be found very much greater than the latter; and in this consists one of the chief characteristics of this disease, that while it is unaccompanied by local pain, as in the subacute inflammation, the membrana tympani will be found to present an amount of redness equal to, and sometimes exceeding, that seen in acute myringitis. The redness has generally, however, a brownish hue in the syphilitic form, which is not observable in that just alluded to. There is not, at first, much loss of polish, but in a short time the membrane assumes a fuzzy appearance. The auricle and meatus I have not seen affected more than in the subacute form; both ears are usually affected at the same time. The amount of deafness is usually very great, and is the symptom that first attracts the patient's attention, and it seldom varies. Tinnitus is not usually present, but in two cases which I possess the notes of the deafness was ushered in by a very loud noise, which passed away after a few days. This inflammation does not end in mucous or muco-purulent discharge from the surface of the membrane, or the sides of the auditory canal; nor have I seen lymph effused upon the external surface of the membrane, as in the more violent and painful forms of otitis; but from the *brownish*-red colour of the membrane in the early

stage, from a yellow-speckled opacity, which is generally observable in it on the subsidence of the redness, and from the intense degree of thickening and opacity which were present in some cases, which were evidently the result of syphilitic myringitis, I am inclined to think that lymph is largely effused between the laminæ, or upon the inner surface of the membrana tympani. Two of the worst cases of deafness (not congenital) I ever saw, appeared to have been the result of syphilitic inflammation, and in both there was great thickening, opacity, and insensibility of the membrane. I am also inclined to think that syphilis has played a more extensive part in the production of deafness than the profession is at all aware of.

CASE VI.—*Syphilitic Inflammation of both Tympanal Membranes; Mercurial Treatment; rapid Recovery.*

Mr. A. B. had a doubtful-looking sore upon the penis, twelve months previous to my seeing him in October last. Considerable doubt was expressed as to the genuine syphilitic character of the sore. It healed under local treatment. Some months subsequently he had a bubo in the right groin, and a small abscess also formed on the under side of the urethra, he then rubbed in mercury, and was confined to the recumbent posture until the swelling in the groin had completely subsided. After this he experienced great weakness and lassitude, and suffered for several weeks from sore throat. These symptoms were relieved by removal to the country; but on his return to town, an eruption appeared extensively on the genitals, thighs, and abdomen, and he had also some slight deafness. These symptoms were relieved by the use of the hydriodate of potash. The eruption, however, came and went, both on its original seat and on the chest and extremities, during the next few weeks. I first saw him, with Mr. Evans, in the middle of October last; he had then no sore throat, but a fresh crop of eruption, in the form of brownish spots, interspersed with small pimples, had ap-

peared generally over the back and the outer sides of the arms. He had also become exceedingly deaf, hearing the watch only when pressed against the auricle, and he complained of a sense of giddiness and fulness in the head, but had no pain whatever in the ears, nor any snuffling in the nose. He stated that his deafness had occurred suddenly, a few hours after rising in the morning, some days before; he had had some noise at the commencement, but it had now nearly vanished. Upon inspection, the auditory canal was found dry, and the membrana tympani of an uniform dark, brown-red colour, so that the situation of the hammer bone was not easily recognizable. There was no ulceration observable, nor any alteration in the plane of the membrane; but the light was not reflected from it in the ordinary manner, thus shewing that it had lost its polish. These appearances were nearly the same upon both sides. He was able to inflate the drums perfectly, and auscultation afforded no evidence either of contraction of the audito-facial passages, or of any accumulation of fluid within the drums.

The treatment consisted in the application of leeches round the meatus every second day, and the use of calomel and opium in small and frequently repeated doses. This mode of administering the mineral disagreeing, having produced diarrhœa and great tenesmus, we were obliged to discontinue it, and substitute inunction in its stead. The deafness and the appearance in the ear remained unaltered until the morning on which salivation was produced, and then hearing was restored almost miraculously, and the next day the redness and vascularity in the ears had almost disappeared. Gentle ptyalism was kept up for some days longer. He has not since had any return either of the deafness or other syphilitic symptoms.

I attended a case with Mr. Cusack two years ago, in which it was found necessary to keep up the mercurial action for above a fortnight, but in this instance the disease had been of a much longer standing. I treated a well-marked case last summer in

consultation with Mr. Mason, in which several relapses occurred, just as we often observe in syphilitic iritis.

VI. FEBRILE SUBACUTE INFLAMMATION ACCOMPANYING THE EXANTHEMATA AND OTHER FEVERS,—GENERALLY PRODUCING OTORRHŒA.

Although, in forming a classification of inflammations of the tympanal membrane, it became necessary to introduce the foregoing heading, it is unnecessary for me to here describe those aural affections which accompany the exanthemata, as being always accompanied by purulent discharges, I have fully detailed their symptoms and treatment in one of my former Contributions to Aural Surgery,—the essay on Otorrhœa. Moreover, I am not at present able to state from personal knowledge what are the peculiarities of the inflammation which precedes the discharge in those cases ; as, although of very common occurrence, the practitioner in aural surgery does not in general see them till long after their first appearance,—seldom, indeed, till the disease becomes chronic, and complicated with polypus ; or often not till long after ulceration has destroyed the membrane, the ossicula have been discharged, and other irreparable mischief has occurred. During the recent epidemic of influenza I have had some opportunities of examining the membrane in the early stage of this affection, and I have found it dark-red, thickened, and very pulpy, like a highly injected portion of the intestinal mucous membrane.

In the foregoing essay I may to some have appeared prolix, but on a subject comparatively so new in English medical literature, so little studied, and, consequently, so little understood, by practitioners in general, it was impossible to explain my meaning without entering into minute descriptions. If aural diseases were as attentively studied in these kingdoms as ophthalmic or obstetric medicine, then would the lengthened description of cases be unnecessary ; but where do we find, throughout the whole circle of our periodical literature, half-a-

dozen well observed and accurately noted cases of diseases of the ear in a twelvemonth? Faithful observation and clinical records of disease are now more required in this than any other branch of medical science.

ART. VII.—*On the Mortality of Medical Practitioners in Ireland.*

Second Article. By JAMES WILLIAM CUSACK, M. D. President of the Royal College of Surgeons, and WILLIAM STOKES, M. D., Regius Professor of Physic in the University of Dublin.

WE have again to draw the attention of the Government, the profession, and the Public, to the subject of the mortality of medical men in Ireland. Our former researches, printed in the Number of this Journal for August last, did not approach the present time nearer than the beginning of the year 1843, and it is manifest that the returns which they gave, unparalleled and appalling though they were, cannot be received as giving the full amount of mortality.

In the present communication we shall give the results of the investigations which we set on foot during the past year, so as to complete, as far as possible, the statement of the Irish medical mortality up to the present time. In the second series of inquiries the number of subjects of investigation has been increased, and information has been sought for with reference to the following subjects:

1st. The names of medical practitioners who have died since 25th March, 1843, the period up to which our former inquiries extended; 2nd. The ages at which death occurred; 3rd. The diseases which caused death; 4th. How such diseases were contracted; 5th. The qualification of the individuals; 6th. The nature and locality of the official situations held at the time of death; 7th. The names of those who have since held, and who now hold, those situations; and, 8th. A statement of what in-

fectious or epidemic diseases such practitioners have previously suffered from.

To effect these objects, upwards of 500 printed circulars were sent to our medical brethren throughout the kingdom, and above 100 private letters were despatched to individuals under peculiar circumstances. The answers to these inquiries which we have had the honour of receiving, are all attested by the signatures of the medical officers of the various institutions throughout the country; and we have thought it right to have the information thus obtained registered in a separate volume, with the names alphabetically arranged and numbered; and we intend depositing this document, for the sake of preservation and inspection, in one of our public libraries.

We have already alluded to the fact, that when medical men are attacked with fever it is eminently malignant, and that in Ireland few medical men of standing have escaped fever. We have shewn that the medical practitioners in Ireland, from various circumstances independent of the constant existence of fever in the country, are placed in a much more dangerous position than that of their brethren in England or Scotland; and that while the proportion of deaths from fever to the mortality from all causes in the general population, was only 1 in every 10.59, the deaths from fever among the medical profession were not less than 1 in 2.29 of the deaths from all causes.

In enumerating the causes of the great medical mortality of Ireland, we omitted to speak of the isolated position in which so many of our brethren are compelled to live. Under these circumstances it often happens that, from the absence of any medical adviser or assistant, the practitioner neglects or misapprehends the premonitory symptoms of disease, or its insidious progress even after it is established, and he frequently does not yield until the affection has reached to its middle stage: he is then thrown on his own resources, and, in his

anxiety to throw off disease, attempts his own cure by measures which he would shrink from in the case of another patient. To obtain competent medical advice he has to send to a distance of many miles; and though the greatest devotion is shewn by our brethren in their attendance on one another, under circumstances of extreme difficulty, yet it is plain that, when the physician has to perform a journey of from twenty to thirty miles a day to visit his patient, the attendance cannot be as close, regular, and constant as the urgency of the case requires. To these unfavourable circumstances must be added the want of proper nurse-tending. This is a matter of great importance; for if there be one disease in which the effect of skilful nurse-tending is more manifest than another, that disease is typhus fever.

We have already stated our opinion, that not only the remuneration for attendance on fever hospitals and dispensaries should be fixed at a liberal scale, but that provision ought be made for the widows and children of those practitioners who had lost their lives in the public service. Next to the loss of life of so many highly educated gentlemen, the most distressing circumstance connected with the subject under consideration is the destitute condition in which their families have been so often left. We can state without fear of contradiction, that in a large proportion of the cases of death of dispensary medical officers of Ireland, the widows and children of those gentlemen are left without provision. It might be urged that these circumstances, distressing though they be, are but the necessary results of improvidence in entering the marriage state when the prospect of a sufficient income is so distant or uncertain; but it must be recollected, that of all professions the medical is the only one in which a necessity exists for its members entering the marriage state; for reasons to which we need not allude. In Ireland the feeling which leads to this state of things is peculiarly strong; and, as a consequence, a large number of the junior practitioners, at the time they fall

victims to fever or other diseases, leave behind them an unprotected and unprovided family(*a*).

But even in the case in which the practitioner has been attacked with fever, and has had the good fortune to recover from the disease, the position of himself and his family is often one of extreme difficulty and hardship. Few men are possessed of a constitution sufficiently robust to enable them to endure the fatigues of country practice with impunity in a period shorter than three months from the subsidence of typhus. Many, it is true, urged by necessity, by humanity, or the fear of being supplanted, recommence their duties at an earlier period, although in a state of great physical weakness and nervous exhaustion, and in this way fall easy victims to a variety of chronic and acute diseases. Others become at once affected with some of the various sequelæ of typhus. Of these, diseases of the lungs and the digestive system are the most frequent, under which the patient too often sinks, as might be expected, when every external circumstance around him is calculated to depress whatever moral or physical energy that may have been left him; and should he even recover, a very great expense has been incurred during his illness, which few in country practice are well able to afford.

It must be clear to any right-thinking man that, so long as fever prevails in this country to such an extent as to render the public medical service one so fraught with danger as we have already shewn it to be, a provision ought to be made at least for the widows of those practitioners whose lives have been sacrificed by their attendance on the poor.

The duties, risks, and public remuneration of the country practitioners of Ireland are subjects which not only bear on the interests of the profession, but on those of every class of the

(*a*) According to a return of a committee for the distribution of a sum of money granted by the "London Ladies' Relief Association," alluded to at page 286 of this Journal, we learn that nineteen medical men left sixteen widows and seventy-eight children almost totally unprovided for.

community, from the highest to the lowest. For many years Ireland has been supplied with a body of highly educated medical men, a large portion of whom are the sons of the gentry of the country, or are otherwise closely related to them, and have brought with them into the profession the *status*, education, and feelings of gentlemen. But it is easy to foresee that if for the most dangerous of all medical services liberal public remuneration be not given, a lower order of men, to whom medicine will not be a profession but a trade, must come to occupy the place of that higher class of which the country has already been deprived in such fearful numbers.

The returns to which we shall now draw attention will exhibit the condition of the medical profession in Ireland in a still more alarming point of view than in our former article, shewing, as they do, a risk of life to the medical practitioner manifestly greater than that in the most unhealthy dependencies of the British Crown ; and we cannot allow ourselves to doubt that when these facts receive the attention which they deserve, that a right view of the value of the profession, and a desire for a due performance of the public service, will dictate a course of proceeding towards the Irish practitioners more calculated to reward their devoted exertions.

In many cases we received an account of the same death several times, indeed there are comparatively few instances in which we have not received duplicate returns of each death ; by this means a greater amount of accuracy has been obtained, and as the deaths were registered in the book already referred to in alphabetical order, the possibility of registering the same death twice was avoided, while an increased amount of authenticity was attained. Moreover, from the number of duplicate returns, we were enabled to complete the registry in a more efficient way than we could otherwise have effected, as what one return was deficient in, others supplied.

Under the head of medical practitioners we have included, —first, physicians and surgeons, or those holding diplomas or

licenses from some university or chartered corporate body; many of these gentlemen were also apothecaries, and several kept open shop: secondly, apothecaries, who may be classed under the head of general practitioners, for such is the position, particularly in the larger towns and cities, which they at present occupy in Ireland. The number of licentiate apothecaries in 1842 amounted to 1174, of which number nearly 700 possessed degrees in medicine and surgery: and, thirdly, pupils; for as in several instances (particularly during the late epidemic) they were intrusted with the care of the people, and having, in this way, or in prosecuting their studies in clinical hospitals, contracted fatal contagious diseases, we conceive, under these circumstances, that they have a right to be classed among the medical staff of this country.

The collected returns of all these deaths have been arranged in a tabular form at page 120, the first section of which exhibits, under thirty-eight headings, the diseases which caused death, arranged according to the simplest and most popular nosological classification, entirely taken from the causes of death specified in the returns; and the ages, set forth in quinquennial periods, from under 20, to 70 and upwards. In the four columns of the next section are arranged the various circumstances under which disease was contracted, as stated in the circulars returned to us, namely: fever attendance; hospital and dispensary duties; and general medical duties, under some of which the fatal and infectious diseases have been most frequently contracted, as well as accidents, and some fatal diseases incurred by hardship, fatigue, and such like circumstances. The column for unspecified causes it is unnecessary to explain. The next section in the table expresses the qualifications to which we have already alluded; and the fourth, that of the years in which death occurred: but we must always bear in mind that under the year 1843 are included but nine months.

In this table we have, we trust, included within the smallest

possible space the greatest amount of information which the returns afforded, as well as presented that information in the form most easily read. The last three items contained in our circular, viz., the official situations, the names of the successors, and whether such practitioners had suffered from epidemic or infectious diseases, &c., are, as far as our returns permitted, all accurately registered; but at the present period of our inquiry, and in this particular table of deaths, they do not require to be specified.

The total return of deaths for the period specified amounts to 443. Of this number, 335 were physicians or surgeons; and this item we believe to be, although deficient, nearer the truth than the return of apothecaries or pupils. These returns give an amount of deaths which we are satisfied is very much below the number which actually occurred within the last four years and nine months, among the medical officers of this country. The deaths of apothecaries returned to us for the same period amount to 88, but this we believe to be much within the actual amount of the mortality of this class. Only twenty pupils have been returned as having died within the period specified, but this number, it is manifest, is very much below the amount of deaths which actually took place. And therefore, although we have inserted these deaths in the general table of mortality, in order to shew what the risk of life is in Ireland, among persons engaged in the treatment of disease or the care of the poor, our calculations made with regard to the average general or yearly mortality among medical men, do not include or take into account these twenty pupils; at the same time we should observe, that, of the number specified, six were engaged as practitioners in the management of public institutions; eleven died during the past year; and twelve altogether of fever. The number of medical pupils attending the Dublin classes has been, upon an average, 500 annually during the last four years, and the deaths returned to us of this class have been three in 1843, one in 1844, one in 1845, four in 1846, and, as already mentioned, eleven

in 1847. It is unnecessary to enter further into the question of the deaths in this section, for it is so deficient that no fair deductions could be drawn from it, and by including them among the total deaths of medical practitioners,—physicians, surgeons, and apothecaries,—we should erroneously and unjustly lessen the actual amount of mortality per cent. of that class, either year by year or as a whole. The deaths specified under twenty years of age occurred among pupils. Seven medical officers of the army, who died while engaged on active service in Ireland during the last five years, are included in the returns of physicians and surgeons;—one died in 1843, one in 1844, one in 1845, two in 1846, and two in 1847. Only one of these, however, died of fever. They are not included in our statistical calculations made with relation to the *living*.

From the records which we possess, and from the accompanying table, a variety of curious and highly interesting statistical deductions might be drawn; but in the present communication we are only desirous of directing attention to a few incontrovertible facts, and to express these in as plain and intelligible a form as possible. We might, moreover, were it necessary, establish comparisons between the mortality which the Irish medical profession exhibits, and the proportion of deaths to the living in other countries afflicted with the most unhealthy climates, and shew a balance in favour of these above that which our profession here exhibits; or we might institute comparisons between the average proportion of deaths in the community at large, from all causes, and of the same ages, and those which the medical profession here presents, during the very prime of life, as the result of its laborious and hazardous duties. The average duration of life, or the annual amount of mortality in the medical, compared with other professions, would form a theme on which much might be written(*a*).

(*a*) In our former article upon this subject, we stated the military mortality in time of war, as a means of comparison with the mortality of Irish medical practitioners. It is scarcely necessary to add that we did not

A single fact, however, we feel to be of more importance than any of these calculations, which we leave others more versed in these matters to form,—and this fact is, that during the year 1847 one hundred and seventy-eight Irish medical practitioners, exclusive of pupils and army surgeons, died; being a proportion of 6·74 per cent., or 1 in every 14·83 practitioners in a single year; and of this number, the great majority fell victims to disease contracted in the discharge of public medical duties.

If we examine the accompanying table we find, that, of the entire number, 214 died of epidemic or contagious diseases, of whom 199 died of typhus fever; and while no age has been exempt from its fatal attacks, it has proved most destructive from 25 to 50 years, between which periods 142 deaths are recorded. Under the head of “how disease was contracted,” we find 71 deaths from fever attendance, we believe, chiefly among the lower orders; thirty-four from hospital duties, where the disease was manifestly contracted from attendance in medical institutions, and almost entirely during the past year; and forty-eight from the performance of medical duties not included in either of the former headings, such as, labouring among the poor in wild and thinly populated districts, where the medical man has often to ride or drive for many hours, exposed to cold and wet, and frequently at night, suffering great fatigue, and then becoming exposed to concentrated contagion in some of the wretched isolated hovels of the peasantry.

do so with a view of proving that the medical mortality in Ireland is greater than the military mortality during a period of war; we merely wished to express the facts as we found them. The time included in the calculation, and all the circumstances connected with the positions of both parties, must be taken into account, as well as the fidelity of both sources of observation. The military mortality was complete; the Irish medical mortality was, as we stated, necessarily deficient. The former might be many times greater than the latter, but, taking all the circumstances into account, the latter might be proportionally enormous. Lest any one might misconstrue our meaning, we added a note to the foregoing effect, in the separate copies which were distributed of our former paper.

TABLE OF DEATHS OF IRISH MEDICAL PRACTITIONERS, SHEWING BY AGES

		Ages.													TOTAL.	
		Under 20.	21 to 25.	26 to 30.	31 to 35.	36 to 40.	41 to 45.	46 to 50.	51 to 55.	56 to 60.	61 to 65.	66 to 70.	Above 70.	Unspecified.		
SPORADIC DISEASES.	EPIDEMIC AND CONTAGIOUS DISEASES.	{ Fever,	6	10	37	21	41	13	30	7	10	1	3	2	18	199
		{ Dysentery, . . . . .	..	..	2	..	2	2	3	1	..	..	1	..	..	11
		{ Diarrhœa, . . . . .	..	..	..	..	..	..	1	..	..	1	..	..	..	2
		{ Scarlatina,	1	..	1	..	..	..	..	..	..	..	..	..	..	2
	Nervous System.	{ Epilepsy, . . . . .	..	..	1	..	1	..	..	..	..	..	..	..	..	2
		{ Paralysis, . . . . .	..	..	..	..	1	..	2	..	1	..	..	2	..	6
		{ Apoplexy, . . . . .	..	..	1	1	1	2	3	..	3	..	..	2	..	13
		{ Cerebral Diseases, . . . . .	..	1	2	1	..	2	1	..	..	1	1	..	..	9
		{ Delirium tremens, . . . . .	..	..	..	1	1	2	1	..	..	..	..	..	1	6
		{ Tetanus, . . . . .	..	..	..	..	1	..	..	..	..	..	..	..	..	1
	Respiratory and Circulating System.	{ Phthisis, . . . . .	..	7	17	5	8	2	1	..	..	..	..	..	..	40
		{ Heart disease, . . . . .	..	..	..	..	..	2	3	3	2	1	1	1	..	13
		{ Hydrothorax, . . . . .	..	..	..	..	2	..	..	..	..	2	1	..	..	5
		{ Aneurism, . . . . .	..	..	..	2	..	..	..	..	1	..	..	..	..	3
		{ Pneumonia, . . . . .	..	..	..	2	2	1	1	..	..	..	..	..	..	6
		{ Hæmoptysis, . . . . .	..	..	1	..	..	..	..	..	..	..	..	..	1	2
		{ Bronchitis, . . . . .	..	..	..	..	..	1	1	..	..	2	6	..	..	10
		{ Asthma, . . . . .	..	..	..	..	1	..	..	..	..	..	..	..	..	1
	Digestive System.	{ Chest disease unspecified, . . . . .	..	..	..	..	1	..	1	1	..	1	1	..	..	5
		{ Peritonitis, . . . . .	..	..	..	..	..	..	..	..	1	..	..	..	..	1
		{ Dropsy, . . . . .	..	..	1	..	2	1	5	1	3	1	..	..	..	14
		{ Disease of Liver, . . . . .	..	..	1	2	1	1	..	1	1	..	..	2	..	9
		{ Disease of Stomach, . . . . .	..	..	..	..	1	..	..	..	..	..	..	..	..	1
		{ Enteritis, . . . . .	..	..	1	..	2	..	..	..	..	..	..	..	..	3
Urinary System.	{ Hæmatemesis, . . . . .	..	..	..	1	..	..	..	..	..	..	..	..	..	1	
	{ Disease of Kidneys, . . . . .	..	..	1	1	..	..	1	..	1	..	..	..	..	4	
	{ Urinary diseases, . . . . .	..	..	1	..	..	..	..	..	1	..	..	..	..	2	
Uncertain Seat.	{ Disease of Bladder, . . . . .	..	..	..	..	..	..	..	..	..	1	1	1	..	3	
	{ Tumour, . . . . .	..	..	..	..	..	..	..	..	1	..	..	..	..	1	
	{ Anthrax, . . . . .	..	..	..	..	..	1	..	..	..	..	..	..	..	1	
	{ Dissecting wound, . . . . .	..	1	..	..	..	..	..	..	..	..	..	..	..	1	
	{ Abscess, . . . . .	..	..	..	..	..	1	..	..	..	..	..	..	..	1	
	{ Old age and debility, . . . . .	..	..	..	..	..	..	..	1	..	6	4	..	..	11	
VIOLENT OR ACCIDENTAL DEATHS.	{ Marasmus, . . . . .	..	..	..	..	1	1	..	..	..	..	..	..	..	2	
	{ Suicide, . . . . .	..	..	3	..	1	1	..	..	..	..	..	..	..	5	
	{ Drowned,	1	..	1	..	1	..	..	..	1	..	..	..	..	4	
	{ Intemperance, . . . . .	..	..	..	1	..	..	1	..	..	..	..	..	..	2	
	{ Fall from horse, . . . . .	..	..	1	..	1	..	1	..	..	..	..	..	..	3	
Unspecified,		1	..	2	1	3	4	1	..	3	1	3	1	18	38	
TOTAL,		9	19	74	39	73	37	57	16	29	9	20	22	39	443	

THEIR AMOUNT AND CAUSES, FROM 25TH MARCH, 1843, TO 1ST JANUARY, 1848.

How Disease was contracted.				Qualifications.			Years.				
Fever Attendance.	Hospital Duties.	Medical Duties.	Unspecified.	Physicians or Surgeons.	Apothecaries	Pupils.	1843.	1844.	1845.	1846.	1847.
71	34	48	46	138	49	12	17	11	18	30	123
..	..	2	9	8	3	..	2	..	1	2	6
..	2	2	..	..	..	..	1	..	1
..	..	1	1	1	..	1	..	..	..	1	1
..	2	2	..	..	1	..	1	..	..
..	..	1	5	5	1	..	1	2	..	3	..
..	13	12	1	..	1	..	4	2	6
..	1	2	6	8	..	1	3	..	2	..	4
..	6	3	3	..	1	1	1	2	1
..	1	1	..	..	..	1	..	..	..
1	..	5	34	29	9	2	7	10	3	7	13
..	..	4	9	12	1	..	5	1	3	2	2
..	..	1	4	3	2	..	..	..	4	1	..
..	3	3	..	..	..	1	..	..	2
..	..	5	1	4	2	..	..	..	3	2	1
..	2	1	1	..	..	2	..	..	..
..	..	4	6	10	..	..	..	..	3	5	2
..	..	1	..	1	..	..	..	..	..	..	1
..	5	4	1	..	1	1	2	1	..
..	1	1	..	..	..	..	1	..	..
..	..	1	13	11	3	..	2	1	3	6	2
..	..	1	8	8	1	..	1	2	..	5	1
..	1	..	1	..	..	..	1	..	..
..	..	2	1	3	..	..	1	1	1	..	..
..	1	1	..	..	..	..	..	1	..
..	4	3	1	..	2	1	..	1	..
..	2	2	..	..	..	..	1	1	..
..	3	2	1	..	..	..	1	1	1
..	1	1	..	..	..	..	..	..	1
..	1	..	1	..	1	..	..	..	..
..	1	..	..	1	..	..	..	..	1
..	1	1	..	..	..	..	1	..	..
..	11	9	1	1	..	3	1	3	4
..	2	2	..	..	1	..	..	1	..
..	5	5	..	..	..	..	..	2	3
..	4	3	..	1	1	..	1	..	2
..	2	2	..	..	..	1	..	..	1
..	3	3	..	..	..	1	..	..	2
..	38	31	6	1	4	4	9	11	10
72	35	78	258	335	88	20	52	44	66	90	191

Another description of risk arising from exposure and fatigue, but which may be classed under the same heading, has been incurred in the garrets and cellars of the ill-ventilated, badly-sewered, and, consequently, most unhealthy portions of our principal towns. Forty-six remain unspecified, for want of due information in the returns; but there can be little doubt that many, if not all of these, might be distributed among the three foregoing headings, were our information perfectly accurate.

The three first years in which these deaths from fever took place do not present any very remarkable contrast, either with one another or with the known mortality from typhus, as it occurs endemically in this country, being, during the nine months in 1843, seventeen in fifty-two deaths; in 1844, eleven in forty-four deaths; in 1845, eighteen in sixty-six deaths; and in 1846, twenty-nine in ninety deaths(*a*); but in 1847 we have 114 deaths, exclusive of those of pupils, in 180 deaths, or 123, including all the qualifications, in 191, being 1 death from fever in every 1·55 deaths from all causes, or 64·51 per cent. in a single year,—a condition which would scarcely be credited were not the facts before us, and the name and circumstance of every such death accurately registered and verified. Now, Mr. Wilde has shewn that “the total deaths from fever in Ireland during the ten years included between June, 1831, and June, 1841, afforded by the Census Returns, amount to 112·072,—being 1 death in every 10·59 of the mortality from all causes, and 1 in 3·4 of the deaths of the total epidemic class of diseases.”

Among the diseases of the nervous system, thirty-seven deaths have been registered, and of these, twelve occurred from apoplexy, chiefly among physicians and surgeons. Four of the deaths in this class have been vouched to us as having occurred as the consequence of the performance of severe medical duties. In this and the five following classes of disease, the “years” do not offer any peculiarity worthy of investigation; and with the exception of the next (the third) class in the

(*a*) One army surgeon died of fever in 1846.

nosological table, the same observation holds good with respect to the manner in which disease was contracted.

Under the head of the diseases of the respiratory and circulating system, eighty-five deaths have been returned, of which number forty occurred from phthisis,—a disease to which the Irish medical practitioner, particularly in the rural districts, is, from his occupation, peculiarly liable; and in six instances we have authority for stating that phthisis followed fever contracted in the discharge of medical duties. The two next most fatal causes of death in this class were—heart disease, 13, and bronchitis, 10.

Twenty-nine deaths occurred from affections of the digestive organs, the most frequent of which was dropsy, and next to that affection, diseases of the liver. Four deaths of this class have been returned to us as the result of the performance of medical duties; two from the diseases just alluded to, probably because the original affection was the result of cold and exposure; and from a like influence have two deaths, registered under enteritis, been traced by the medical gentlemen who signed the returns.

Diseases of the urinary organs amount to nine: they chiefly occurred in persons advanced in life.

Seventeen deaths are enumerated under the head of those of “Uncertain Seat,” the principal item in which is old age and debility, under which eleven deaths are registered.

The entire deaths resulting from sporadic diseases amounted to 177; and, including fourteen from accidental causes, and thirty-eight unspecified, it would make the proportion of contagious and epidemic diseases (which are chiefly contracted in the discharge of duty), 1 in 1.93, or 51.86 per cent. of the entire number from all causes.

Fourteen accidental or violent deaths are recorded, of which we regret to say five are registered cases of suicide. Of these five, two happened in 1846, and three in 1847. The distressed condition of our medical brethren,—the great hardships they have endured,—the hopeless distress which they daily witnessed,—and the mortality of their brethren around, as well as the ge-

nerally depressed state of the community,—may, no doubt, be assigned as causes which will account, in some measure, for this sad state of things. We believe that some of the deaths in this class, such as “drowned,” and “fall from horse,” occurred while the practitioners were engaged on professional service; but, the returns being silent upon this subject, we have not so entered them. On the whole, there is every reason to believe that the enumeration of the diseases is more correct than those set down in statistical returns; and while we have taken every pains to arrive at the truth from the best authorities, we have registered as unspecified all those where the cause of death was doubtfully stated. Under this latter head will be found thirty-six deaths; and could we have procured the cause of death in these cases, they would, when distributed through the other sections, have rendered the array of deaths, particularly from epidemic diseases, more appalling. But medical men located in some of the distant mountain districts are themselves so separated from medical aid, that death has often occurred without the sufferer having been visited by any professional attendant. The ages we believe to have been given with tolerable correctness, and being in the table arranged in five-year sections, the numbers fall within the *actual* periods. Many remarkable comparisons might be made between the ages at which death has taken place among the medical profession in Ireland, and other members of the community, aged between 20 and 70. The deficiency in our returns occurred principally in the earlier years over which our inquiry extends; but, in a country like this, where there is no general registry of deaths as in England, nor any registry of the deaths of the members of the medical profession, either by the respective bodies to which they belong, or the public offices, such deficiencies must naturally be expected.

We have now but to seek to arrive at an approximation to the actual amount of mortality per annum, or the proportion which these deaths bear to the number of practitioners in Ireland. As already stated, we exclude the pupils, only a

moiety of whose deaths are undoubtedly returned, and also the army surgeons. Where the members of the medical profession belong to such a number of colleges and licensing bodies in Great Britain, as well as those in Ireland, it would not be possible to obtain the actual numbers from any of the lists of these bodies; but a Census of the medical profession having been twice published within the period over which our inquiry extends, we are able to form a very close approximation to the actual average numbers. In Dr. Croly's Medical Directory, published in 1843, the number of medical practitioners, including apothecaries, in Ireland, exclusive of Dublin, amounted to 2109, and taking Dublin at 482, as enumerated in the Directory for 1846, it makes 2591; but in the more perfect one published in 1846, the numbers were as follows, for all Ireland: 1989 practitioners, holding degrees in medicine and surgery; 513 apothecaries, who did not hold such diplomas; and 120 practitioners, whose qualifications were unspecified: in all 2622; and we do not believe that the actual amount has ever exceeded 2700(a). Since then the profession has not been on the increase, and considerable emigration, as well as the very great mortality, has served to keep the number of practitioners in Ireland within that amount. When we state that 2650 has been the average of the medical practitioners of Ireland (including apothecaries who do not hold degrees), for the last five years included in our inquiry, we believe that we have made the nearest approximation possible to the actual amount. If we distribute the 416 deaths (which do not include pupils or army surgeons) over the five years, we find an

(a) The census for 1841 reckoned under the head of those "Ministering to Health," 3820 physicians, surgeons, and apothecaries; but this, we have reason to know, was, from the character of the returns incorrect. The only authority on which an estimate can be made is that published by Dr. Croly, in which the names, qualifications, and addresses of each person are set down, and until this is controverted it must be an authority. We know that the profession has been usually supposed to be 3000, but without any authority; and, on the other hand, we have found (and we have had some experience in this matter) Croly's Directory wonderfully correct.

average mortality of 3·14 per cent., or 1 in every 31·77; but then it must be remembered that the early years of our inquiry are very deficient, and that the returns for the year 1843 are only for nine months. Taking the proportion in years, we find the following returns:—1843 (deficient three months), 1 in 55·20; in 1844, 1 in 63·1; in 1845, 1 in 41·40; in 1846, 1 in 31·55; and in 1847, 1 in 14·89, or 6·71 per cent. So that during the healthy years in Ireland we have an average mortality of 1 in 53·23; and taking 1846 and 1847 as unhealthy periods, 1 in 23·22; but it is manifest that our returns are very deficient for the early years.

The only other question which we at present think necessary to bring forward in this paper, is the proportion of mortality in the provinces, both from epidemic and sporadic diseases, under which latter we have included the violent and accidental deaths, as well as those unspecified.

Provinces.	Years.					
	1843.	1844.	1845.	1846.	1847.	Total.
Leinster, . . .	20	11	20	26	33	110
Munster, . . .	19	9	15	15	48	106
Ulster,	4	9	11	20	44	88
Connaught, . .	4	5	9	4	25	47
Unspecified, . .	2	9	10	21	30	72
Total,	49	43	65	86	180	423
Pupils,	3	1	1	4	11	20
	52	44	66	90	191	443

We have received a return of only thirty-three deaths from the city of Dublin, during the period over which our inquiry extends.

We will now conclude these investigations for the present, but we must repeat that though we have endeavoured to ascertain, by three series of investigations, the mortality of the Irish medical profession, that our results must be taken as giving an amount considerably below the truth.

We have to express our thanks to many of the physicians and surgeons of Ireland, who have so promptly and carefully answered our inquiries; and we would particularly specify Dr. Little of Sligo, by whose exertions a great quantity of information, not only bearing on the mortality of the profession, but on the question of the necessity for a provision for the families of gentlemen who have lost their lives in the public service, has been obtained. We have also to return thanks to Dr. Lynch of Loughrea for important information on these topics.

Finally, we beg to offer our acknowledgments to the Editor of this Journal, Mr. Wilde, for the time, labour, and care, which he has bestowed in the necessary correspondence of the last investigation, and on the arrangement and tabulation of the returns in both series of investigations. Without his assistance, indeed, we could hardly have given the arranged table of diseases at page 120–21.

The following deductions may be drawn from the inquiries which we have instituted upon this highly important subject, as shewn in this and our former communication:

1. That the physicians and surgeons of Ireland are, by their profession, more exposed to the influence of fatal diseases than any other class of the community of a similar grade; and that they are at all times liable to these influences, from the period of their entering the profession as students to advanced life.

2. That few, if any, of the medical profession in Ireland, escape typhus fever; that many have had it twice, and several three times.

3. That the fevers of medical men in Ireland are almost always of a bad character, even when the epidemic is not of the worst kind; and that, consequently, fever has proved more fatal to medical men than to any other class of the community of a similar grade in this country.

4. That the fevers and other infectious diseases, from which

our profession suffers so severely, are generally contracted in discharge of public duties, either in attendance upon sanitary institutions, or in the miserable, ill-ventilated, and dirty dwellings of the poor.

5. That, according to our returns received for the period prior to 1843,—undoubtedly deficient,—568 out of 1220 practitioners in charge of medical institutions suffered from typhus fever; of these, twenty-eight had fever twice, and nine three times; and that, of the whole number, three hundred, or one-fourth, died.

6. That the calculations contained in the papers which we have now laid before the public shew that, of 743 deaths of medical men, of which we possess the particulars, 331 were caused by typhus fever, or 1 in every 2·24;—nearly forty-five per cent. of the whole.

7. That, during the prevalence of the late epidemic, 500 Irish medical men, at the lowest computation, suffered from fever or other epidemic diseases, contracted, for the most part, in discharge of public duties, by which themselves and their families have suffered considerable loss.

8. That about one-fifteenth of the entire medical community of Ireland have died during the year 1847.

9. That during the continuance of an attack of fever, and in cases of recovery for a long period subsequent to it, the families of medical men are deprived of their exertions,—usually their only means of support.

We think that as the risk incurred in the public medical service in Ireland is so great, an adequate remuneration should be afforded for the performance of these services; and as the widows and children of medical men who have died during the last two years have been, in many instances, left totally unprovided for, we most earnestly recommend to the consideration of the Government, the propriety of making some legal provision for the families of those gentlemen whose lives have been sacrificed to the public service.

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Fevers, their Diagnosis, Pathology, and Treatment. Prepared and edited, with large Additions, from the Essays on Fever in Tweedie's Library of Practical Medicine. By MEREDITH CLYMER, M. D., Professor of the Principles and Practice of Medicine in the Franklin College of Philadelphia, &c. Philadelphia, Lea and Blanchard. 1847. 8vo. pp. 604.

The History, Diagnosis, and Treatment of the Fevers of the United States. By ELISHA BARTLETT, M. D., Professor of the Theory and Practice of Physic in the Medical Department of Transylvania University, &c. Philadelphia, Lea and Blanchard, 1847. 8vo. pp. 547.

ALTHOUGH we have good cause to complain of the want of an international Copyright Act between the United States and England, in consequence of which, and the absence of duty on paper there, books are republished in America soon after their appearance in this country, without any profit to the original authors or publishers, and, in most cases, without their consent; nevertheless, in some instances, this unfair practice is not altogether unproductive of beneficial results. A book thus republished gains, unquestionably, very great additional circulation, and the author's fame is consequently much extended; moreover, the habit of writing which the editor of the reprint of necessity acquires, induces him to augment the original work with notes, and often with much new matter on subjects not sufficiently noticed, or, perhaps, altogether omitted. We thus frequently obtain valuable contributions to medical science, which, under other circumstances, would, probably, have never seen the light; and the favourable reception which those contributions have met with has, in many instances, induced the writers to publish on their own account. That such a result is

of frequent occurrence, is sufficiently evident from the fact, that most of the celebrated American medical authors have originally appeared in the field of literature, as editors of English reprints.

Dr. Clymer has edited several reprints of British medical works, of which we may enumerate Dr. Williams's *Principles of Medicine*, Dr. Williams's *Treatise on Diseases of the Respiratory Organs*, and Dr. Carpenter's *Human Physiology*, the value of which, to American readers, has been much increased by his notes and additions. In the volume before us he has selected the various treatises on febrile diseases, contained in different volumes of Dr. Tweedie's *Library of Medicine*, placed them in juxtaposition in one volume, and enriched the text with numerous notes and additions, both original and derived from other writers, together with an entirely new chapter on the typhoid fever of America and the Continent of Europe. It thus contains Dr. Christison's essays on the general doctrines of fever, on continued, and on hectic fevers; Dr. Shapter's essays on the plague, yellow fever, and intermittent and remittent fevers; Dr. Locock's on infantile, remittent, and puerperal fevers; Dr. Gregory's on small-pox; Dr. George Burrowes's on measles and scarlatina; and Dr. Clymer's on typhoid fever.

As books of this character are not allowed to be imported or sold in the British dominions under a heavy penalty, we purpose making our readers acquainted with some of Dr. Clymer's original additions and comments on the essays he has here republished.

The first essay in the American, as in the English edition, is by Dr. Christison on the general doctrines of fever. It contains, as most of our readers are, no doubt, aware, a masterly exposition of the various views entertained on this much disputed question by the British and Continental schools of medicine since the days of Cullen; to these Dr. Clymer has added copious extracts from the treatises of Dr. Copland, Dr. Alison, and Dr. Southwood Smith, which render this part of the work as complete as the concentrated experience of some of the best of our modern writers on fever could make it.

With respect to the classification of fevers, as of other diseases, we are of opinion that the simplest is always the best, provided that the lines of demarcation between the divisions made are sufficiently broad and distinct, and that no single class is too extensive. We have always had a great horror of those nosological systems which, at an era of our profession not very remote, were fashionable amongst the great medical writers, and which, in the present practical age, we contem-

plate with amazement at the extraordinary powers of subdivision possessed by their propounders, and with an inclination to lament the labour and time thrown away in their composition(a). We are not, then, inclined to quarrel with Dr. Clymer when he says:

“The simplest arrangement, and, perhaps, the best for practical purposes, is that founded on the peculiar phenomena which are constantly presented by the different forms of fever, constituting the types. In one variety we have the febrile phenomena interrupted, absolutely or incompletely, at certain periods; whilst in another the train of phenomena proceeds in an uninterrupted series; and a third is accompanied with a peculiar and characteristic eruption. The order that we shall observe, therefore, will be: 1. *Continued Fevers*; 2. *Periodical Fevers*; and 3. *Exanthematous or Eruptive Fevers*.

Amongst continued fevers Dr. Clymer places ephemeral fever, and we shall give his description of it in full, both as an example of the completeness which an American reprint gives to an English book (no mention was made of this form of fever in Dr. Christison's original essay), and as a specimen of the editor's style. The definition is taken from Dr. Copland:—increased frequency and strength of pulse, with heat of skin, headach, thirst, and white, excited tongue, terminating in perspiration, generally within twenty-four hours.

“It is a frequent disease in this country, and is the slightest as well as the simplest of all primary febrile disorders, and is so named from its seldom lasting longer than a single diurnal revolution.

“CAUSES.—It is often difficult to discover any unequivocal cause for an attack of ephemeral fever. It affects chiefly children and young persons, and frequently seems to be excited by the atmospheric vicissitudes during the irregular weather of the spring months in temperate climates. Excessive muscular and mental exertion, from prolonged exercise or intense study,—exposure to the sun,—the intemperate use of alcoholic drinks,—disorder of the digestive organs from repletion,—or the nature of the ingesta,—or congestion of the liver,—or a vitiated condition of the secretions of the primæ viæ,—are all capable of producing an attack. The febrile condition often excited in puerperal women on the first secretion of milk has, by most writers, been classed under this head.

“SYMPTOMS.—In the acuter form of ephemeral fever the inva-

(a) Cullen's system of nosology consists of 4 classes, 20 orders, and 149 species; Mason Good's, of 6 classes, 18 orders, 120 genera, and 445 species; Sauvage's of 10 classes, 44 orders, and 315 species; and Vogel's of 11 classes, 12 orders, and 560 species.

sion is generally sudden, the attack commencing with a chill ; but in mild cases there are lassitude, yawnings, general malaise, with a feeling of irritation or excitement. These symptoms, or the initial chill, when occurring, are soon succeeded by heat of skin, and cephalalgia. The face is flushed and animated, but the expression is natural; the pulse is frequent, strong, and full; there is frequently pain in the small of the back, with a sense of great weariness and soreness in the limbs; the thirst is intense; there is no appetite; the tongue is white, the papillæ enlarged; the mouth is dry, with a bad taste, and the urine scanty and high-coloured; the skin, though hot, is usually soft. In children, and in some women, when the attack is severe, slight delirium may supervene for a short time. Exploration of the chest and abdomen discovers no lesion of the contained organs. These symptoms, with restlessness, languor, want of sleep, and general uneasiness, having lasted for six, twelve, or eighteen hours, the fever begins to diminish, the skin becomes moist, the urine more copious, and depositing a sediment, and free perspiration occurring, the attack subsides within twenty-four hours, though occasionally it continues for several days, assuming the character and type of *Inflammatory Fever*. Sometimes the patient continues listless and feverish on the following day, does not feel disposed to quit his bed, and passes an uncomfortable day, with slight febrile exacerbation towards evening. After a good night's rest, however, he usually awakens refreshed and well.

“DIAGNOSIS.—It is often extremely difficult to decide at the outset of an attack whether it is a case of ephemeral, periodic, or continued fever. The absence or presence of the causes just enumerated may assist our inquiry, whilst the non-occurrence or insignificance of the initial chill, and the continuation of the fever beyond six or eight hours, will often enable one to distinguish it from intermittent fever. The amount of vascular excitement, the slight depression of the nervous powers, and the very transient duration of the premonitory symptoms, will serve to distinguish it from the more serious varieties of fever.

“PROGNOSIS.—The prognosis is, of course, favourable ; but it should be borne in mind that sometimes the disorder is prolonged beyond the diurnal period, and assumes the character of synocha.

“TREATMENT.—Confinement to bed, abstinence from food, and demulcent drinks, are often all that is necessary for an attack of ephemeral fever, whose tendency is towards a favourable termination, and which, indeed, requires little or no treatment. If, however, the disorder has followed exposure to a hot sun, and there is much vascular excitement, with cerebral symptoms, blood-letting may be advisable, together with active purging, and cold applications to the head. If the attack be subsequent to a debauch, the stomach and bowels should be freely evacuated: when the stomach is irritable, small doses of the nitrate of potash, in combination with the muriate of ammonia, may be administered. When the skin is

dry and unperspirable, diaphoretics should be administered. Cold, or even iced drinks, may be freely allowed when wished for, together with small quantities of soda water.”—p. 75.

For our own part, we place most confidence in the administration of an emetic at the very commencement of an attack of ephemeral fever, more especially in strong constitutions or in young persons. We have no doubt that a continued fever is, in many cases, cut short and converted into an ephemeral attack by this remedy when it is given sufficiently early; where, however, an epidemic is raging, we must have due regard to its type; for if it be of an asthenic or typhoid character, an emetic, so far from cutting short the disease, generally proves injurious. Thus, in the epidemic fever which has just passed over our heads, we have seen but very few cases in which the administration of an emetic was admissible at the outset; and we do not remember a single instance in which the disease was cut short by it.

In the chapter on inflammatory fever the editor has inserted analyses of the blood from Andral and Gavarret, Becquerel and Rodier, and Jennings; he also gives copious extracts from Dr. Stevens' and Dr. Copland's works, on the *seasoning* or inflammatory fever of hot climates. We find, moreover, an excellent account of the epidemic of 1843-44, which visited Scotland and parts of England, chiefly compiled from the writings of Alison, Cormack, Craigie, and Arnott. He has not omitted to notice Dr. Mackenzie's observations, as to the great similarity between this fever and several of the Irish epidemics; and which resembled our present epidemic, chiefly in the very great tendency to relapse,—a tendency remarked by all who have as yet described this fever, and which is especially noticed by Dr. Lalor, in the present Number of our Journal, in his graphic and valuable account of the late epidemic as it appeared in Kilkenny.

The chapter on typhus fever is much improved by the numerous additions which the editor has made to it, more especially on the causes, prevalence, and mortality of the disease, extracting largely on these different heads from the published accounts of the several epidemics, down to that of 1843-44; thus supplying a great want in the original essay,—statistical details. We are also glad to find, in the section on treatment, an excellent though short *resumé* of Dr. Stokes's observations on the administration of wine in fever, the value of which seems fully appreciated in America, as indeed they are in every civilized part of the globe. Where nervous symptoms are prominent, Dr. Clymer seems to place much faith in camphor; and as we

have been led to entertain a very high opinion of its efficacy in the treatment of adynamic fevers, from our own experience of its effects in an epidemic of gaol fever, which visited the County Tipperary Prison in 1836-37, then under our charge, we give the following extract, containing Dr. Gerhard's opinions as to the benefit derived from its use in the Philadelphia epidemic of 1836,—they so fully correspond with our own:

“Camphor was certainly amongst the most useful and powerful of our remedies. We used it largely in the severe cases, especially those in which the atonic nervous symptoms were very marked; and we had no reason to repent of its employment. In general there was a marked diminution of some of the most prominent and harassing symptoms. We gave the camphor in emulsion in doses of five grains every two hours, and in enema in doses of a scruple. The immediate effect was the lessening of the subsultus and tremors, for which it was chiefly administered, and sometimes the diminution of delirium. In some cases we possessed a complete control over the subsultus, which was immediately checked by an injection containing a scruple of camphor. It would cease for some hours, but afterwards return with nearly its former severity. Still it was a useful palliative, and, like most remedies of its class, acted as a useful balance-wheel in preserving the harmony of the system, until the disease had passed through its natural course. The camphor frequently acted powerfully as an anodyne when sleep had been interrupted by the previous disturbance of the nervous system.”—p. 222.

Typhoid fever is the name given to the sporadic or endemic fever of the middle and northern States of America, which is now proved to be identical with that of the temperate latitudes of the Continent of Europe,—France, Germany, Sweden, &c. That it differs, in many essential particulars, though probably a variety of the same species, from the ordinary *typhus* fever of the British Islands, where, however, it is an occasional visitant, has been sufficiently shewn by numerous essays on the subject by both American and French writers. Our readers will find two of these,—one by Dr. Lombard, of Geneva, and the other by Dr. Gerhard, of Philadelphia,—in our former Series; and we would also direct their attention to a review of the first edition of Dr. Bartlett's work on typhoid and typhus fever, in our twenty-sixth volume, as containing an account of the views of the American school on this subject(a).

(a) The epidemic fever described in Dr. Lalor's essay in our present Number, to which we have already referred, is, we think, very nearly allied to *typhoid* fever; the slight difference in some of the symptoms, and the complication with purpura, must be ascribed to the peculiar cachectic state of those whom it attacked.

In the chapter on typhoid fever, contributed by Dr. Clymer to the volume before us, it is defined to be

“An acute affection, whose anatomical character is an enlargement and special alteration of the intestinal follicles, accompanied by increase of volume, injection, softening, and, occasionally, suppuration of the corresponding mesenteric glands. The usual symptoms are, continuous fever, of variable intensity; stupor, prostration, pain and gurgling on pressure in the right iliac region; an eruption, generally observed on the abdomen and lower part of the thorax, of lenticular, rose-coloured, slightly elevated papillæ, disappearing on pressure; meteorism, diarrhœa, pulverulence or brownish coating of the interior of the nostrils.”—p. 234.

The treatment of typhoid, as of other fevers, should be conducted, Dr. Clymer thinks, chiefly on the expectant principle, being auxiliary, and directed towards the shelter of the essential functions from serious harm: consideration must be had also to the prevalent epidemic constitution, which is constantly changing. Local complications are the most frequent causes of danger, and require to be carefully watched. Though sometimes of an inflammatory character, we fully agree with our author that evacuates, more especially general blood-letting, are, as a general rule, but ill borne in their treatment: when bleeding is absolutely requisite, it should be local, either by the application of cupping-glasses or leeches, according to circumstances. In the general treatment of this form of fever, it must be borne in mind that the patient may perish from mere exhaustion or asthenia, and that, in general, the free exhibition of wine, brandy, carbonate of ammonia, quina, &c., is attended with benefit, and the fault usually committed is, not resorting to them sufficiently early. The due and proper administration of nourishment, also, from the very commencement of the disease, a point so forcibly put forth by Dr. Graves in his *Clinical Lectures*, must not be overlooked. How much truth is in the following paragraph, with which Dr. Clymer concludes his observations on treatment:

“A number of specific methods of treatment of typhoid fever have lately been proposed. One cures all his cases by purgatives or emetocathartics; another is equally successful with small doses of the nitrate of silver; whilst a third lauds the extraordinary power of alum or chlorine water. In a disorder where so many recover spontaneously, there are too many difficulties and sources of fallacy to warrant our attributing to any exclusive method of treatment the merit of effecting cures, especially when such a plan is repugnant to analogy or general therapeutic principles.”—p. 259.

The chief additions which we find to Dr. Shapter's Essay on Plague, consist of extracts from the writings of Clot Bey, Grassi, Ferguson, and the Parliamentary Reports on Quarantine, bearing on the question of the causes of the disease, more especially as regards contagion. Dr. Clymer himself is of opinion that the plague is like small-pox, both contagious and infectious.

The chapter on yellow fever is enriched with an account of some of the most recent epidemics which have occurred in America; that which appeared in Jersey in 1839 met with an able historian in Dr. Ashbel Smith, of Galveston. From his description of the disease Dr. Clymer extracts largely. The black vomit, which constitutes the most constant phenomenon of the disease,—by many looked on as pathognomonic,—seems to have been very rarely absent; indeed, in some fatal cases, it was almost the only symptom present. In one reported by Dr. Dickson, of Charleston, that of an engineer of a steamboat, the patient retained, to the moment of his death, his uncommon muscular strength,—presenting a singular spectacle, going about from room to room, and into the piazza, when, from the urgent irritability of his stomach, he was obliged to carry with him a vessel to receive the black vomit, which he threw up frequently, and in large quantities. In *all* fatal cases the black vomit was found in the stomach after death.

With reference to the treatment of yellow fever, Dr. Clymer deservedly lays much stress on the fact, that the disease assumes divers types in various years, and in different latitudes. Thus Dr. Nott witnessed five epidemics of yellow fever at Mobile,—in 1837, 1839, 1842, 1843, and 1845,—each of which presented some predominant peculiarity of type, and all demanded some modification of treatment. For a general plan of treatment, we would be inclined to place much faith in that adopted by Dr. Imray in the Dominica epidemic of 1841, and published by him in an admirable paper on the Nature, Causes, and Treatment of Yellow Fever, in the sixty-fourth volume of the *Edinburgh Medical and Surgical Journal*.

To Dr. Shapter's Essay on Intermittent Fever, the American editor has made but few additions, and these do not possess sufficient novelty to induce us to detain our readers with an account of them.

Remittent fever being very prevalent, and often of a very violent type, in the middle, southern, and western districts of the United States,—constituting, in fact, the seasoning fever there, even to visitants from the northern districts,—possesses much interest for American readers, and we consequently find

that Dr. Clymer has made large additions to Dr. Shapter's original essay. But as, from the rarity of the disease in the British Islands, it does not possess the same interest for our home readers, we omit any notice of them.

No additions have been made to Dr. Locock's valuable treatises; nor to the masterly article by Dr. George Gregory, on small-pox.

The chief additions to Dr. Burrowes' Essay on Measles consist of extracts from MM. Rilliet and Barthez; and those to the Essay on Scarlatina, are from the most recent British writers on that disease.

From the review which we have now taken of Dr. Clymer's additions to this reprint, our readers must perceive that the value of the original essays has been much increased by their appearance in an American garb. And we would feel obliged to our friends on the other side of the Atlantic if they would more frequently furnish us with their editions of our standard works, to enable us to make our readers acquainted with the valuable additions which they so generally make to them.

Dr. Bartlett's work is a second edition of that noticed in the twenty-sixth volume of our former series, although not stated to be so in the title-page; which the author explains by saying in his short preface, that it is in some respects a new work, the account of periodical and of yellow fever being extended to nearly half the volume, while before it occupied less than sixty pages; "but the history of typhoid and typhus fever remains in much the same state, with such additions and developments only as further observation and study have enabled him to make."

In these additions, we are glad to find that Dr. Bartlett has repaired some of the omissions we noticed in our review of his book, more especially with reference to the causes of typhoid fever and the influence of malaria on its production. This information has been chiefly derived from the answers of medical men, practising throughout the United States, to letters addressed to them by the author. From these it would appear that the disease is met with indiscriminately in crowded cities, where it appears to be propagated by contagion, and in country districts, where the evidence as to its contagious character is not so manifest,—notwithstanding Dr. Clymer's assertion, which does not appear to us to be supported by the evidence he adduces, "that the contagion of typhoid fever is much more active in rural districts than in populous cities." It prevails generally in elevated districts, and is but rarely seen

in low, marshy soils. Thus, Dr. Coe, of Dekalb county, Georgia, says that the section in which it prevails in his part of the States "is elevated, with a poor soil, and has only one small stream passing through it." And Dr. Wooten, of Lowndesboro', Alabama, relates the following curious fact:

"There is a circumstance connected with its prevalence here worthy of note. We have a high ridge of land, possessing a sandy and gravelly soil, which affords many springs of good free-stone water, and is selected by many planters who occupy the surrounding country for their residences. This ridge is about six miles long, and from one to three miles wide, and at its nearest point about three miles from the Alabama river. It is surrounded by prairie plantations and prairie sloughs on all sides, except that towards the river, where it is bordered by a low, pondy, and malarial country. In all the surrounding country, intermittent and remittent fevers are an annual matter of course occurrence, whilst the true typhoid is extremely rare, though cases of it do sometimes occur. But upon the ridge, where remittents and intermittents are of very rare occurrence, the typhoid cases are of frequent occurrence, especially during the last few years; so that many planters say they would prefer remaining on their plantations, and having their regular turn of chills and fever, to residing on the ridge and risking this slow fever."—p. 93.

We do not feel ourselves called on to notice at any length the third and fourth parts of Dr. Bartlett's work, which constitute the chief difference between his first and second edition, as the diseases of which they treat possess but little interest for Europeans, and, consequently, for the majority of our readers.

The third part is devoted to the description of periodical fever, under which name are included intermittent, bilious remittent, and pernicious remittent or congestive, fevers, as the author considers these to be the three principal forms, or *varieties*, in which the former, "the integral, individual, nosological disease," shews itself.

As we were compelled to remark, in our review of the first edition of Dr. Bartlett's book, we must say the very same now, that "we find scarcely anything of original matter" in these additions. They are made up of the opinions of others, on which the author scarcely ever attempts to indulge an observation derived from his own experience. We do not know any system of writing, or rather compilation, more injurious than this, whether for the student or practitioner. What is more calculated to inculcate unsettled views, and, consequently, hesitating practice, than to have the opinions of seven or eight eminent medical men, practising in various parts of

the world, and all differing more or less in their views, laid before the reader, without either note or comment? It is all fair and proper for the writers of essays in cyclopædias or dictionaries of medicine, to collect together the various theories and opinions entertained on the subject about which they write; but even from them we expect some digest of these theories, and we look to them for some new matter, the result of their own experience. But we cannot understand the principle of any physician sending forth to the world a book made up of the sayings of Dr. This, and the remarks of Dr. That, and calling his work an essay on a certain class of diseases.

And this Dr. Bartlett has done. Let us take, for example, the very first section on the febrile symptoms of periodical fever,—and we assure our readers that we do not select an exaggerated specimen; every page we open is of a similar character:

“The formal commencement of the disease is nearly always marked by a distinct rigor or chill. This varies in severity and duration in different cases; sometimes it is slight and transient, at others it is extremely severe, prolonged for two or three hours. Senac says: ‘The chilly fit puts on a variety of forms; sometimes, for instance, beginning at the feet, at other times about the scapulæ, and again in the back, it runs through the whole body in a manner resembling small streams of water, poured irregularly in every direction.’ According to Dr. Boling, the initiatory chill is generally slight; sometimes it is a well-marked ague, while at others it consists merely in a sensation of coldness, felt especially when the patient turns in bed, or in any way disturbs his covering. In some cases there is only a single chill, in others the chill is repeated, usually with diminishing severity, once, twice, three times, or more, in the course of the disease. Dr. Boling says: ‘Where the attack is purely remittent from the beginning, a second well-marked ague hardly ever occurs; though, in all cases, whether the first exacerbation was ushered in by an ague, or merely by slight rigors, a recurrence of the latter, in a very slight degree, frequently precedes the second and third, and occasionally even the fourth and fifth exacerbations. Where the fever is of the double tertian type, the first and third, and perhaps the fifth exacerbation may be ushered in by tolerably distinct agues, while the second and fourth may be preceded by but the very slightest sensation of coldness, if any.’ Dr. Stewardson says: ‘The recurrence of the chills was subject to great diversity; either there were none after the first, or they recurred at intervals most commonly of twenty-four or forty-eight hours, for the first few days, and then disappeared altogether, or again reappeared towards the conclusion or during convalescence; or finally shewed themselves, at various intervals, throughout the whole course of the disease.’

“ Dr. William Currie says: ‘ After the second paroxysm, and sometimes after the first, the fever is seldom preceded by a cold stage.’ ”—p. 307.

But what need we of proofs? Hear the *Author's* own confession in the first chapter of the fourth part,—that on yellow fever; headed, *Preliminary Matters*:

“ Sect. I.—*Introductory*. As I wish to be always on honest and fair terms with my reader, I shall commence this fourth and last part of my book by informing him that I am not personally familiar with the subject of which it treats. I have never met yellow fever at the bed-side; I have had no opportunities for direct and clinical study of the disease[!]”—p. 410.

And yet he undertakes to write an essay on it, extending to 125 royal octavo pages.

Amongst other new matter, Dr. Bartlett has added to his second edition a bibliography of the different fevers described. It is very defective, and is executed with the very worst taste, containing random remarks on the different authors whose works are mentioned, which, we regret to say, are anything but creditable to his pen. Let our readers judge from the following specimen:

“ ‘ *Results of an Investigation respecting Epidemic and Pestilential Diseases, &c.* By Charles Maclean, M. D. London, 1817. 2 vols. pp. 1016.’ My only motive for including this work in my bibliography of yellow fever is to guard my readers against buying or attempting to read it. In all medical literature it would be difficult finding a noisier, emptier, or more arrogant, egotistical, and puppyish work than this.”—p. 528.

One other blemish in Dr. Bartlett's book we feel compelled to notice, as calling for our strongest reprobation. It is the introduction of a scene narrated by Dr. Lewis in the *New Orleans Medical Journal*, as illustrative of the state of the mind and physical powers in yellow fever. The scene is one of the grossest immorality, and described in the most filthy and disgusting language; nevertheless Dr. Bartlett introduces it with the following observations:

“ Our picture of yellow fever would be altogether imperfect and unfinished without the introduction of certain dark and fantastic shadows, which come in more appropriately here than anywhere else. To leave them out would be like omitting the grinning and horrible shapes from one of the witch scenes of *Teniers*. ”

He then goes on to describe the augmented sexual desire which often characterizes the advanced stages of the disease,

and in illustration quotes Dr. Lewis's story, to which we have above referred,—one, the bare allusion to which is, we think, almost a pollution to our pages. We cannot trust ourselves to say more on this subject; but we sincerely regret that Dr. Bartlett did not consult more the dictates of common decency, not to say of religion, than to disseminate, by means of his book, such an insult to the admittedly pure character of the medical profession.

The Cholera not to be arrested by Quarantine; a brief Historical Sketch of the great Epidemic of 1817, and its Invasions of Europe in 1831–2 and 1847. With practical Remarks on the Treatment, preventive and curative, of the Disease. By GAVIN MILROY, M. D., &c. London, Churchill. 1847 Pamphlet. pp. 51.

Zur Pest-und Quarantainefrage. Von Dr. KARL LUDWIG SIGMUND, K. K., Primar-Wundarzte in allgemeinen Krankenhause in Wien, &c. &c. 1847. ss. 31.

On Plague and Quarantine. By Dr. KARL LUDWIG SIGMUND, Senior Surgeon in the General Hospital at Vienna. 1847. pp. 31.

Researches into the Pathology and Treatment of the Asiatic, or Algide, Cholera. By E. A. PARKES, M. D., London, Assistant Physician to University College Hospital. London, Churchill. 1847. 8vo. pp. 250.

THE first of these works is a most timely, sensible, and well-written essay, from the pen of Dr. Milroy, whose observations on quarantine and the plague we have had recently to notice in such favourable terms. This *brochure* owes its origin to a review by the Author of some works on the subject, in a recent number of the late Medico-Chirurgical Review. It is now reprinted with many valuable additions, and is likely to prove acceptable, not alone to the profession, but to the public, when such well grounded apprehension exists as to the speedy invasion of this pestilence.

Our Author adopts for his motto, indeed for his theme, the admirable observation of Mr. Farr, the Registrar-General of Deaths in England, in his last Quarterly Report, that “internal sanitary arrangements, and not quarantine and sanitary lines, are the safeguards of nations against the invasion of epidemic diseases.” He argues most powerfully in favour of the non-contagious character of cholera, admitting that, under certain un-

salutary circumstances, the disease may, like all others, become infectious; but even then infection acts but an occasional and very subordinate part in the diffusion of the epidemic.

Dr. Milroy deduces many of his arguments, as regards the probability of a visitation of the disease, which since last summer has been devastating the East, to the British Islands, and as to its purely epidemical character, from the history of influenza, its *avant-courier* and analogue. His proofs as to the similarity of the two diseases in their mode of diffusion, and "consecutive affinity" are carefully collected, and, we think, completely unanswerable. And no one ventures to assert that influenza is contagious, yet some are still found to state that cholera is so; wherefore, we even now hear of proposals of more strict quarantine regulations and sanitary lines, to keep off the approach of a pestilence which is carried on the wings of the air; while the only true preventives,—the cleansing of towns and cities, and the purification and ventilation of the habitations of the poor,—*the internal sanitary arrangements* of Dr. Farr,—are to a great extent overlooked. In all epidemic diseases, "the mortality is invariably commensurate with the filth and destitution of the inhabitants, and the impurity of their abodes."

And this duty, we assert, would be a much more legitimate—certainly a much more patriotic and useful employment—for a Board of Health, than that of seeking out bad precedents for the degradation of the profession of medicine, by the ancients thought not unworthy of the Gods, to the level of the mechanic working for his *daily* hire. We fervently hope and trust, should our island be unfortunately again visited with the cholera, that the Government will see the propriety of appointing a Board of Health, such as we had in the year 1833, and which is described in a note at p. 528 of our last volume, and thus give the country the advantage of having its sanitary arrangements under the control of a body which will pay some slight attention to the indignant cry of our profession, which has now resounded throughout the length and breadth of the land.

The position of Austria, bounded for a great extent by Turkey, and open to the east by the great water-course of the Danube, has naturally led to its present system of quarantine,—a system the most perfect and extensive of its kind which has ever existed. When this system was first established the intercourse with the east was comparatively small, and the Tartar and Turkish races were at deadly enmity with the nations of Europe, and, consequently, it answered the purpose for which it was instituted. But in modern times, when steam naviga-

tion has brought every part of the west of Europe in close contact with all parts of the east, and that no bad results have ensued from this intercourse, people have naturally been led to suspect that the precautions of Austria and Russia to keep out the Asiatic epidemics are useless. This opinion generally prevails in England and France, but, as may be expected, the terror produced by sad experience still operates on those near the sources of the danger. However, even in Austria, the value of the system is now doubted by many, among whom Dr. Sigmund has been the most indefatigable in his endeavour to bring about some reform. In the pamphlet specified in the heading he has noticed the principal features of the question in reviewing Dr. Max. Heiné's *Bertäge zur Geschichte der orientalischen Pest*. He looks upon the reform of the whole system as of the greatest importance to the commerce and social relations of eastern Europe, as well as to the civilization of those countries bordering that part of the continent. The present system, while it certainly does not offer any effectual barrier to the plague, totally destroys trade. Paget, in his Travels in Hungary, states, that the nobles of Transylvania boast of having persons in their service who will at any time smuggle silks, salt, &c., across the Turkish frontiers; in fact, like all statutes, the system looks well on paper, but when closely examined it is found not to answer. Dr. Sigmund appears to agree, in general, with the opinion pronounced by the French Academy of Medecine on the subject of plague in 1846: that the plague propagates itself through the atmosphere, but not by contact, and consequently is not contagious; clothes, merchandize, &c., do not propagate the plague by contact, and do not form centres of infection; the infected alone form such centres, and in this way propagate the plague through the atmosphere; and, finally, that the period of incubation never exceeds eight days. He is, however, of opinion, that it is premature to come to any conclusion on a subject so little known, and about the pathology of which we know next to nothing. He has suggested a mode of supplying this deficiency in our knowledge, which we think is very well worthy of attention, it is, that a commission be appointed, composed of physicians from the different nations of Europe, who would study the various epidemic diseases at their sources in Asia, and thus place a cordon around the true source of the evil, much more effectual than any which Austria, or any other country, can ever hope to establish about their own frontiers.

Dr. Parkes, who had an opportunity of witnessing the disease in India, in the capacity of assistant surgeon in one of

Her Majesty's regiments, also takes the same common-sense view of the non-contagious character of cholera, and of the injurious working of quarantine laws. The two epidemics which furnished him with materials for the excellent practical treatise before us, afforded numerous illustrations on these points. The first of these epidemics occurred at Moulmein, in the Denasse-rim provinces, and lasted from September, 1842, to July, 1843. The second occurred at Madras, and was of much shorter duration, lasting only from the 19th of June to the end of August, 1845. In the epidemic at Moulmein the disease prevailed in one part of the town for months before it invaded another, although there was not the least restriction on inter-communication between the two, and the only reason that could be assigned was, that the part first attacked is nearest the river, and is the lowest, dampest, and most thickly populated quarter. A prevalence of a certain amount of moisture in the atmosphere seemed, in these epidemics, to have been the most constant meteorological phenomenon which accompanied the spread of the disease. We thus find, that at Madras the cholera was heard of at a station ninety miles off, and in a few days afterwards it appeared at Madras itself, a certain degree of moisture being apparent in the atmosphere, and a wind blowing directly from the station where it had first occurred; moreover, the disease attacked "chiefly, or exclusively, the towns and villages stationed in low marshy places, on the banks of rivers, or on the shores of the sea." This fact was so well known to the Burmans, through whose district the epidemic of 1842-3 was very prevalent, that, according to Dr. Parkes, directly the first death occurred in any village, the men deserted their fishery or their paddy fields, and betook themselves to their endless forests, universally stating that,

"Though they were left without food by this flight, and were exposed to the burning noon-day rays, and to the heavy tropical dews at night, yet cholera invariably left them after the second or third day's march inland."

In both Dr. Parkes' and Dr. Milroy's Essays we find excellent and judicious observations on the treatment of cholera, a perusal of which we strongly recommend. For the present we do not intend to comment on the remedies that have been proposed or employed in this disease, but we purpose to take an early opportunity of laying before our readers an account of the additions to our knowledge as to the treatment of this disease, which the time that has elapsed since the great epidemic of 1832-3, and its recurrence in the east, have afforded.

1. *An Essay on the Use and Abuse of Restraint in the Management of the Insane ; written in competition for the Prize of Sir Edward Sugden.* By HAMILTON LABATT, A. B., T. C. D. Dublin, Hodges and Smith. 1847. pp. 76.
2. *Essay on the Use and Abuse of Restraint in the Management of the Insane, which obtained the Prize offered by Sir Edward Sugden in the Year 1846. Unpublished : the Manuscript lying in the Royal College of Surgeons, Dublin.* By D. MAC ADAM, M. D.
3. *On the Construction and Government of Lunatic Asylums and Hospitals for the Insane.* By D. CONOLLY, M. D. London, Churchill. 1846. pp. 183.
4. *Report of the Commissioners in Lunacy to the Lord Chancellor. Presented to both Houses of Parliament.* 1847.
5. *The Consciousness of Right and Wrong ; a just Test of the Plea of partial Insanity in Criminal Cases.* By C. LOCKHART ROBERTSON, M. D. Edinburgh, Black. 1847. pp. 19.

THE painful details of the by-gone suffering and mismanagement of mad-houses,—the many puzzled and mystified attempts of Judges and juries to make out the difference between crime and insanity,—and the numberless discussions and meditations of divines, poets, philosophers, and physicians, to explain madness,—have given a degree of interest and popularity to the subject, which seems to be augmenting in proportion as time runs on, with nothing done to enlighten our ignorance as to its nature. We cannot even boast of the possession of a definition of the disease. Shakspeare could not make one; and Esquirol, in his last great work, which contains almost the totality of our knowledge of morbid psychology, makes no attempt to give one. We have elaborate descriptions of the various forms which the disease assumes, and the empirical attempts which have been made to combat them; but this is all. The whole of our knowledge, in regard to the pathology and therapeutics of the disease, amounts simply to an argument in favour of the “Young Physic” scepticism.

The Latin poet said: “Nemo mortalium omnibus horis sapit.” This is a homely fact; and one that embarrasses and perplexes all attempts to draw the line of demarcation between mental health and disease. It is true of all classes and kinds of minds, genius itself not excepted; and was an anticipation of the celebrated opinion of Haslam, expressed at the well-known trial relative to the lunacy of Miss Bagster, in 1832:

“I never saw any human being who was of sound mind. I presume the Deity is of sound mind, and *He* alone.”

Spurzheim, Burdach, Professor Lordat of Montpellier, and many others, have maintained that genius differed from madness, and every other mental quality, in being spontaneous in its origin, and non-transmissible in the way of generation. To use the very beautiful expression of Professor Lordat: “Geniuses are foundlings, and childless.” An appeal to facts, however, seems to shew that genius really possesses no such super-excellent and peculiar attribute, and that it is equally transmissible and hereditary with madness, or any other mental quality or condition. The family of Cloebylus could number no less than eight tragic poets. The Roman families of Hortensius and Curis were distinguished by the possession and transmission of the oratorical power. The family of our own Lord Chatham is another instance. The persistency of genius in the family of the Medici is well known. Madame de Stael, Hypatia, and Areta, were the daughters of philosophers. The father of Mirabeau was a man of genius. The father of John Flaxman, the sculptor, was an eminent modeller of figures in plaster; and Albert Thorwalsden was the son of Golskalk Thorwalsden, a talented sculptor. The father of Raphael, and the mother of Vandyke, were distinguished artists. And Beethoven and Mozart were the sons of musicians of high reputation. When it is considered that genius is scarce, and that, consequently, the field of observation is limited,—and, moreover, that no mental quality is constantly and without exception hereditary,—it must be allowed that genius, like the virtues and vices, is hereditary, and subject to the same laws of transmission.

We cannot define insanity: nevertheless, Judges and juries are constantly being called upon to distinguish between crime and madness. The dilemma is a very serious one, calling for an anxious and profound investigation and modification of the law of our land in regard to it. In June, 1843, the English House of Lords applied to the Judges of the law Courts for a legal definition of insanity as a plea in criminal cases. The definition or rule given must be considered as vague, unsatisfactory, and far from being based upon all our psychological facts. They affirmed that the *consciousness of right and wrong rendered a man responsible for his actions*. Certainly this was a most narrow-minded decision,—totally inadequate to the demands of humanity,—altogether inconsistent with our knowledge of the principles of human action,—and one regarding which Lord Brougham has observed, that “juries do not really comprehend what is meant by the question.” It is a well-as-

certained fact, but one which has not yet entered into the calculations of our lawyers, that the consciousness of right and wrong may remain intact, at the same time that an individual may be deprived of the liberty of will: the power of *choice* over actions. This fact must form the base of every legal rule which pretends to protect the afflicted and punish the guilty. To give comprehensiveness and human precision and accuracy to the rule of the fifteen Judges, we think it should have been framed thus: "The consciousness of right and wrong renders a man responsible for his actions, *provided always that he retains the power to choose the right and avoid the wrong.*" Such a formula as the above would, in a measure, meet the demands of humanity and science, and introduce into our Courts of law a recognition of what must inevitably come some day,—moral and instinctive insanity,—as pleas for acquittal in criminal cases.

Dr. Robertson observes :

"The law of England does not recognise the existence of instinctive insanity. According to the answer of the fifteen Judges, nothing can justify a wrong act except it be clearly proved that the party did not know right from wrong; and it cannot be doubted that the admission of the plea of an insane impulse, in a mind apparently (both intellectually and morally) sane, as a justification of crime, would deprive punishment of much of the fear and control which it now exerts over the vicious. The undoubted existence, however, of instinctive insanity, is recognised by every writer upon insanity, and the consequent possibility of man's vengeance in such a case, following Heaven's visitation, must ever render it a matter of deep and serious consideration for our juries and Judges, whether parties accused of capital crimes be amenable to a human tribunal, or be responsible only to a higher power."

An individual possessing a healthy moral constitution can *choose* whether he will or will not commit a crime. But it is the leading feature of insane impulse that the power of choice is in abeyance, and the unhappy being commits crime from *necessity*. The Code of the French exhibits a degree of scientific and humane accuracy and comprehensiveness in this matter, which our own legislators would do well to study. It imperatively demands, in order to establish the charge of criminality in any case, that the accused be in possession of a perfect moral constitution; and should he labour under any mental defect or alienation involving the suspension of the freedom of the will, and proved to exist at the moment the crime was committed, punishment cannot be inflicted.

In legislating upon insanity it will be necessary to consider how far the voluntary insanity induced by drunkenness dimi-

nishes the responsibility for crimes committed in that state. The amount of infamy perpetrated during drunkenness is fearful; but how far we are justified in punishing the acts which flow out of this condition, while we allow the condition itself to pass unpunished, is a question which we have no inclination to enter upon.

Although insanity is a subject that we know so little about, there is abroad, happily, a spirit of inquiry, and craving for information regarding it which we confidently expect will soon project a ray of light which will not only enable us to explain the poetical paradox about the "thin partitions," &c., but, what is of greater importance, will give us an insight into the pathology and therapeutics of the disease, in regard to which we know nothing that can be depended upon.

In order to give an impulse to research, Sir Edward Sugden, late Lord Chancellor of Ireland, with laudable public-spiritedness, gave lately as a sum of money to the Irish Colleges of Physicians and Surgeons, to be distributed in prizes for the best essays upon Insanity and its collateral subjects. One of these prizes was gained by Dr. Williams for his Essay upon the Means of inducing Sleep in Madness, and to this we have already referred in our fifth Number. Last year the College of Surgeons had the management of the competition. The subject proposed was, "The Use and Abuse of Restraint in the Management of the Insane." Four essays were presented, and Dr. Mac Adam was the successful candidate. Unfortunately, however, the glory of his achievement has been in a measure obscured by some alleged violations of the conditions regulating the competition. The fairness of the award has been much canvassed, both by the losing competitors and by the Fellows of the College; the judges having since acknowledged that they *inadvertently* committed an error in making the award in the face of circumstances which disqualified the candidate they had selected. Mr. Labatt, who was one of the unsuccessful competitors, and whose essay forms one of the subjects of our remarks, states in his Preface, that one of the grounds of objection to the selection made was founded

"On the circumstance of the candidate whose essay was selected having disclosed his name by making 'a communication' to one of the adjudicating body *previous* to the final decision; which was also reported in the same official document, and further corroborated by a public reply given by one of the Fellows to that effect at the annual meeting, by the gentleman who received the 'communication.' The gentleman, however, to whom the communication was made did not vote on the occasion."

Dr. Mac Adam has not published his essay. It remains,

however, as a public document, open to the inspection of the Fellows of the College.

The competitors for this prize are not agreed as to what is to be regarded as the use and abuse of restraint. Mr. Labatt advocates the total abolition of mechanical restraint; assenting, like Dr. Conolly, to the proposition of Mr. Hill, of the Lincoln Asylum, that, "in a properly constructed building, with a sufficient number of suitable attendants, restraint is never necessary, never justifiable, and always injurious, in all cases of lunacy whatever." Dr. Mac Adam, the successful competitor, holds, on the other hand, that mechanical restraint is justifiable in certain cases, but that care should be used to make it as little irksome as possible, and to continue it no longer than is absolutely necessary. So far we are willing to coincide with Dr. Mac Adam; but when he prescribes mechanical restraint as a *penal* rather than as a preventive and remedial measure, in cases of insane impulse to the commission of criminal acts, we think that he takes a narrow-minded view of the actual condition of, and powers possessed by, such patients. He overlooks the fact that the crimes of the morally and instinctively insane are involuntary, and that, to visit them with penalties and pains is cruel, unscientific, and useless.

The debate upon the comparative merits of the restraint and non-restraint systems of practice of the present day, about which so much time and talent have been expended, we cannot but regard as a mere quibble, which has been agitated, exaggerated, and caricatured by over-sensitive benevolence, and refined and timid prejudice. What is the restraint system of the present day as practised in all the continental asylums, and in most of the leading asylums of our own land? It may be stated in the following terms: that, inasmuch as lunatics do occasionally present the awful spectacle of the consentaneous supremacy of destructive impulses with abeyance of moral liberty or control over the actions, forcible means must be resorted to to prevent the gratification of the impulse in question; and inasmuch as the judicious use of ingenious mechanical contrivances is more humane, certain, constant, and less painful in its operation than the hands, vigilance, and forcible control of attendants, the treatment by mechanical restraint is to be preferred to the living restraint of attendants. And surely there is nothing in such a proposition to call up so much cavil and warm animadversion as the advocates of the opposite view have been in the habit of putting forth. Moreover, in discussing the question, they have constantly identified the modified, the enlightened, the kind and necessary restraint of

the present day, with the dreadful details of mismanagement of the days when Pinel and Esquirol began their labours of love and pity. And the public, thus misled, have learned to associate the word *restraint* with every species of suffering and barbarity, and to see an approach to Utopia in the doctrine of non-restraint; little thinking that in avoiding Scylla they are rushing upon Charybdis. Mr. Labatt's essay is full of illustrations in point. The physicians of the continental asylums are unanimous in regarding the restraint system of the present day as the most humane and best. M. Fabret says: "For those who know the insane, non-restraint is a fiction,—a simple substitution of one means for another." We restrain a fractured limb with bandages and splints, to avoid the mischiefs that would accrue from involuntary movements. The arms of madmen are equally subject to involuntary movements, and of a most deadly kind; and whether shall we control these movements with mechanical contrivances that are always vigilant and never passionate, or with the hands of attendants that may, have been, and are, the reverse of these. Let each curator of the insane anxiously consult his conscience in this matter. In our last extended review of the Lunacy question, we quoted from Dr. Stewart's admirable Report of the Belfast Asylum an extract which fully expresses our ideas upon the subject, and to which we would again refer our readers. (See No. III. for August, 1846, p. 146.)

No doubt it is humiliating to see an individual mechanically restrained; but is not the disease calling for it much more humiliating? If a physician feel, as we have often felt, that in particular cases he is more likely to succeed in preserving life by the use of mechanical restraint than without it, let him apply it. It is better that a thousand lunatics should suffer a certain degree of unnecessary restriction than that one life should be lost. And let not Dr. Conolly again affirm, as he did in his Letter to Benjamin Rotch, Esq., that an asylum was "*disgraced* by the introduction of a single strait-waiscoat?" Was this a becoming homage to the system and the labours of the great and good Pinel and Esquirol? If we examine the details of the two systems it will be found that they differ very little from each other; the only difference, in fact, consisting in the mode of treating *two* or perhaps *three* patients in an asylum containing from six hundred to a thousand. See what the difference really amounts to. Dr. Conolly does not hesitate to restrain the feet by padlocking boots upon them, when patients cannot be induced to keep them on by any other means. He does not hesitate to restrain the head by locking it in a case,

to prevent the poor patient scratching an irritated scalp. Nor does he hesitate to encase the whole body in a "well-made, well-padded, *well-secured* dress, and a pair of soft gloves without divisions for the fingers and thumb, if the patient be so frantic as to bite his flesh." (*a*) He does not, however, *restrain the arms specially*. *Voilà tous !* We ask candidly is this insignificant difference in the treatment of so small a number of lunatics as require any restraint at all, according to the restraint system, worthy of all the noise and cavil that have been raised about the high-sounding words *Restraint* and *Non-restraint*.

There is, however, another species of restraint which we would joyfully go the whole length with Dr. Conolly in abolishing, and that is the restraint, not of leather, but of asylum matrons; applied—not to madmen, but to mad Doctors. Dr. Conolly himself seems to have worn these fetters inconveniently long; and now, at length, escaping from the restraint which gallantry saddles upon every man, he openly tells the tale of his hardships. When matrons know their places, and confine themselves within their proper bounds, without seeking to oppose and embarrass the physician in the carrying out his plans for working the asylum committed to his charge, they are very useful officers; but, unfortunately, this class of ladies cannot suffer to be directed or governed; they are generally women of education and shrewdness, combined with exalted ideas of their own importance and powers, and they will insist upon criticising, modifying, and disregarding almost every arrangement made by the physician, to the infinite confusion and discredit of the whole proceedings of the establishment to which they belong. In the Continental asylums there are no matrons. The duties are discharged by head attendants merely, who receive their orders from the physicians and house stewards. In most of these asylums the *Sœurs de Charité* occupy these offices, and the system works well. Dr. Conolly, who will, no doubt, feel the infinite superiority of such a system over our own, observes:

"The matron of an asylum is usually chosen by the governing body; but it is a great evil in an asylum when this officer is made of too much importance, and led to consider herself independent of the physician, and has the power,—by sending away the attendants on his female patients, choosing others without reference to him, and moving them from ward to ward,—to interfere in the most direct and mischievous manner with highly important parts of his treatment. A matron to an asylum may be a valuable auxiliary to the

(*a*) *Lancet*, 1st November, 1845.

medical officers, and the means of doing much good, of which I have had some personal experience. But matrons are generally spoiled as auxiliaries to the medical officers, by a pardonable bearing to female influence on the part of all committees, who are pleased with the studious deference apparently paid to their opinion, and really paid to their power."

And now let us attempt to make a few observations with a view of rescuing the great Cullen from some degree of violence done to his fame and discrimination by Mr. Labatt. In opening his melancholy detail of the former sufferings endured by lunatics, he observes:

"We cannot but entertain a feeling of incredulity and amazement, that a method so opposite in its character, and so revolting to humanity, should for a moment have been sanctioned, not only by the ignorant attendant and official, but by the weight and authority of the learning and experience of the day. Of the truth of this the writings of Cullen afford us melancholy evidence. Alluding to the treatment of insanity, he states: 'In most cases it has appeared to be necessary to employ a very constant impression of fear, and therefore to inspire them with the awe and dread of some particular persons, especially of those who are constantly to be near them. This awe and dread is, therefore, by one means or other, to be acquired; in the first place, by their being authors of all the restraints that may be occasionally proper; but sometimes it may be necessary to acquire it even by stripes and blows. The former, although having the appearance of some severity, are much safer than strokes or blows about the head(a).'"

This isolated paragraph, from the writings of Cullen affords us anything but a fair estimate of his method of treating insanity. In his work upon the "Derangement of the Intellectual Functions," he appears to better advantage; and his advice, in regard to treatment, amounts almost to an anticipation of the benevolent and enlightened views of Pinel, which were promulgated some time afterwards. Indeed, some have conjectured that Pinel caught the first idea of his philanthropic reform, whilst engaged in making a translation of Cullen's works. It is an interesting fact that, in the first century of the Christian era, the treatment of insanity was equally benevolent and enlightened with that of the present day. Fifteen centuries afterwards the disease was attributed to sorcery, the incarnation of demons, and all kinds of supernatural influences! At that time were ushered in and perpetuated the revolting practices that have just been swept away. Now Cullen was un-

(a) Works of William Cullen, edited by J. Thompson.

doubtedly the first physician of modern times who revived the good old method, and recommended that lunatics should be indulged with the greatest possible amount of liberty. He says, in the work above cited, "that it is necessary to control the rage and violence of maniacs; but it should be done in a manner the least painful to them; and that a strait waistcoat is the best means that has so far been contrived. We should seek to act upon their minds by fear, and *rewards* and punishments; and they should be allowed to walk about at their pleasure. Some maniacs have been cured by fixing their attention upon some continuous and even rude labour. The forced attention which occupation requires is a very sure means of breaking the morbid chain of ideas. But mania must be considered as differing in different cases, the treatment requiring to be modified and regulated accordingly." Cullen also thinks that "one may *sometimes*, but very rarely, derive any good effects from corporal punishments." M. Trebat, in his *Recherches Historiques sur la Folie*," gives a similar sketch of the views of Cullen, in regard to madness. Cullen is really worthy the imitation, rather than the censure, of Mr. Labatt.

We remarked above that, in the first century, the treatment of insanity was not at all less enlightened and benevolent than it is at the present day. The following translation from the works of Cælius Aurelianus, who follows the views of Soranus, will shew this in a most interesting and instructive manner:

"Maniacs ought to be placed in a situation moderately heated and lighted, and noiseless. No painting should ornament the walls of their habitation; the air should enter by high openings. They should be placed upon the ground floor, to prevent suicide by precipitation. If they are so excited as not to be capable of using a bed, they must be provided with straw, well chosen, prepared, and separated from all hard substances. They should be visited by strangers as seldom as possible; and the attendants should be instructed to endeavour to repress the vagaries of the patients, mildly yet firmly; letting them see that their faults have been observed; using at one time an indulgence, at another a reprimand, accompanied with a statement of the advantage that would result from better behaviour.

"If the excitement of the patient tend to a dangerous result, it will be necessary to engage a certain number of attendants to control the movements of the patients. If the sight of the men produce irritation, and only in very rare cases, we must resort to mechanical restraint, but with the greatest precautions, and with all gentleness, covering all the articulations carefully to avoid injuring the skin, *for the means of restraint, used without care and manage-*

ment, augment fury instead of allaying it. We should observe with great care the form of the insanity, and resort to the salutary influence of moral impressions, of cheerful ideas, and novelties for giving pleasure and recreation. If the disease be obstinate, the head should be shaved. They should be questioned and conversed with, yet without fatiguing them. This, together with reading, are means for subduing restlessness of body. After reading, they should engage in *theatrical representations*, which are well adapted for dispelling sadness and frivolous fears."

He even goes the length of pointing out the distinction between the real persistency of the malady, and some symptoms which amount merely to the natural influence of the law of habit. This last observation is very remarkable and startling. The same idea was recently expressed in conversation by M. Guislain to the late Dr. Andrew Coomb, who obviously thought it an original observation, from the manner in which he alludes to it in his "*Principles of Physiology applied to the Preservation of Health*," &c.

Influenced by the conscientious conviction that to treat certain desperate and intractable cases of insanity by the use of mechanical restraint, and to apply it also to lunatics when they suffer from grave bodily disease, requiring the horizontal position, and as little expenditure of muscular power as possible, is most wise and most humane,—we now suggest a new means of restraint, which we have found of easy application, little irksome to the patient, and secure when applied. The object to be attained is to prevent flexion of the fore-arms; and we attain this end by making the sleeves of a jacket or bed-gown of stout leather. When this is applied the arms remain extended, but there is perfect freedom of motion at the shoulder joint, and the body itself is unembarrassed by any means of constraint whatever. The cylinders of leather forming the sleeves of the restraint dress are large and roomy, and exert no pressure whatever upon any part. It is obvious that with such a dress on, a patient may be allowed liberty to roam about, and yet be incapable of doing violence to himself or others. Although there is freedom of motion at the shoulder-joints, persons prone to suicide could not reach the head and neck, owing to the want of flexion at the elbow: violence to others is prevented at the same time, seeing that little force can be exerted with an extended fore-arm.

We have had experience in both the restraint and non-restraint methods; and we candidly confess that after having seen a lady struggling for hours against three stout nurses, who were deputed to hold her *per vim* in bed, the weight of the

bodies of the whole three having been at times suffered by her; and after having seen a gentleman confined in bed by four men,—the excitement rising at times so high, from the fear that these men intended to murder him, that the whole four have been obliged actually to lay upon his body at once to control his motions;—we cannot understand how men can be blinded to the utility, the wisdom, and benevolence of using mechanical restraint. In a recent conversation which we had with M. Voisin, when we visited the admirable asylum at Vamure, in the neighbourhood of Paris, conducted by himself and M. Fabret, he remarked: “I would apply mechanical restraint to my parents in certain forms of madness, convinced that it would be the only method of treating them kindly. The sight would, no doubt, be harrowing to my feelings, but it is necessary for us to be benevolent with the *head* as well as the *heart* !”

Dr. Conolly's work is a very valuable contribution to our economic rules for the management of asylums. The following calculation of the expense of the different items of consumption for each pauper patient at Hanwell will be found very useful as a standard of comparison,—the diet table of that institution being an excellent one, neither scanty nor redundant:

“The actual cost of provisions for each patient is four shillings and eight pence half-penny per week. If it is gratifying to see what can be done for the comfort of insane patients by this sum, it is also well to keep the amount itself in mind, as there are seldom wanting unscrupulous persons who will undertake the whole charge of the insane for a sum scarcely exceeding it. County asylums are consequently first much opposed, and then opened with false expectations; and although everything is done for a time to realize such expectations, and always at the expense of the patients, the delusion at length becomes palpable, and the disappointment of the rate-payers extreme. It may be useful, when speaking of this item of expenditure in a county asylum, to mention that the average weekly expenditure for each patient in the Hanwell Asylum, for the quarter ending 31st March, 1846, was, for provisions, four shillings and eight pence half-penny: for house and bedding expenses, one shilling and eight pence farthing; for salaries and wages and maintenance of officers, attendants, and servants, one shilling and eight pence three farthings; for clothing, eight pence; for medicine and incidental expenses, three pence half-penny: the weekly total for each patient being nine shillings and a penny: the annual total £123 2s. 4d.”

The Commissioners of Lunacy for England and Wales have issued another Report, a large octavo volume, full of statistical

information upon the objects of their care, and combining a review of what the English superintendents of asylums know and practise in regard to lunacy and lunatics. The Commission is thus constituted: Lord Ashley (Chairman), Lord Seymour, Mr. Vernon Smith, Mr. Gordon, Mr. Barlow, Dr. Turner, Dr. Hume, Dr. Prichard, Mr. Proctor, Mr. Mylne, Mr. Campbell, and Mr. Lutwidge (Secretary).

There are three physicians and three barristers, which constitute the Visiting Commission, each visitation being made conjointly by a physician and barrister.

The volume reflects the highest credit upon the Commissioners for the industry and care which they have displayed in going through the details of their office. One of the most startling and painfully interesting facts which they have elicited during their investigations is, that cases of lunatic debtors come within the jurisdiction of the Insolvent Court, and that they may be seized within the precincts of lunatic asylums, and consigned to prison; here is a disgraceful instance:

“ The case of Lieut. F. appeared to us to be replete with hardship. In the first place he had been insane, and confined as a lunatic in Haslar Hospital for upwards of twenty years; he was quite blind; he was utterly ignorant of the debt which had been contracted by his wife, who had not only a separate provision for herself, but also nearly the whole of the Lieutenant's half-pay paid over for her support. And, secondly, legal process was permitted to be served upon him at a time when he was quite unconscious of the fact, when, although he had a good defence to the action, he was totally incapable of defending himself, and had no person appointed to defend him. Thus a blind and insane person was eventually cast into gaol in winter, for a debt for which he never was liable. It appears, therefore, that lunatic debtors are deprived of the benefits which the law extends even to criminals !”

This piece of extreme law will not, we feel assured, be allowed to do much more violence to the rights of the afflicted. The enlightened spirit which has now long agitated the cause of the lunatic, and has swept away pain after pain from his miserable and mismanaged person, will shelter him from this, which is among the last of the clamant and glaringly removable calamities which he owes to the mistaken judgments of his sane protectors.

The Report contains a *resumé* of the different methods of treatment carried out in the English asylums. Its details afford, however, a sad picture of the helplessness and poverty of the resources of medicine. We know nothing whatever of the im-

mediate causes or nature of insanity; no wonder, then, that our treatment of the disease should be so uncertain and vague. It cannot be rational; nor do we possess a single empiric remedy. Experience has, however, revealed this fact to us, that the observation of all those hygienic rules which, in healthy individuals, are known to maintain and improve the bodily vigour, is favourable to the re-establishment of mental health. With regard to the moral treatment of the insane the Commissioners observe :

“There is reason to apprehend that the attention of medical men has been of late years too exclusively devoted to what is termed moral treatment, to the neglect, in some instances, of the resources of medicine. They appear occasionally to have lost sight of the fact that insanity never exists without a physical cause, namely, some disturbance of the functions of the brain.”

The Commissioners here talk as though they had the power to “minister to a mind diseased.” What are the *resources of medicine* here alluded to? A glance through the Appendix (L) of the Report will shew that medicine has no resources wherewith to combat insanity,—we mean, of course, the pure idiopathic insanity,—and not those cases which are apparently symptomatic, with either constipated bowels, gastric derangement, or disturbance of the uterine functions. We have remedies for improving the general health; but the general health may be good and the insanity still remain;—for such cases we have nothing that we can call a remedy. The Commissioners affirm that insanity never exists without a physical cause. How do they know that? Have they never met with cases in which, during life and after death, no physical cause whatever could be detected? In cases where insanity has been suddenly produced by a moral impression, what physical cause has preceded it? Or when sudden restoration to reason has occurred by a powerful moral impression, what physical change has preceded it? It is a mysterious affair. Not so, apparently, to the Commissioners. We are not sure, however, whether we comprehend exactly their meaning, for there seems to be some want of precision about the terms used. They say, “insanity never exists without a physical cause, namely, *some disturbance of the functions of the brain*.” Does not insanity consist in *disturbance of the functions of the brain*?—the cause of which we ask. How then can it be both cause and effect?

All is uncertainty. Is madness a disease of the soul or of the body? Each view has its supporters. All the modern authors upon insanity cite cases in which no physical lesion whatever has been traced as explanatory of the insanity which

the patient suffered from; and M. Heinroth, of Germany, has propounded the following view :

“ Madness is the loss of moral liberty. It never depends upon a physical cause; it is not a disease of the body but a disease of the spirit,—a depravity. It is not,—it cannot be,—hereditary, because the thinking *I*,—the soul,—is not so. The temperament and the constitution are transmissible in the way of generation, against which he who is born of parents who have suffered insanity ought to reach, in order to prevent themselves from becoming mad. The man who has, during his whole life, the image of God before his eyes and in his soul, need have no fear of ever losing his reason. It is clear as the light of day, that the torments of the unfortunate creatures called sorcerers and possessed, are the consequence of the exaltation of their remorse of conscience. Man has not only received a limited degree of reasoning power, but also a certain moral force which cannot be vanquished by any physical power, and succumbs only under the weight of his own depravity and faults.”

Another German spiritualist, M. Eschenmayer, says :

“ All the diseases of the soul proceed from the inferior faculties usurping the domain of the superior faculties, and appropriating their personality. The law of reason always remains pure and complete, and can never be injured in its intimate nature by external agents. But it happens that the secondary faculties revolt against it, and afterwards fall into confusion. This is what takes place in mental alienation.”

The phrenologists, on the other hand, give a local habitation to the disease ; and if they do not succeed in making themselves useful and satisfactory, they at least have the merit of being intelligible. When Gall first visited Paris, whither his phrenological fame had reached before him, he was conducted every day to *la Salpêtrière* by M. Esquirol. At first, Esquirol recounted to Gall the histories of the different lunatics whom they saw, and Gall explained, by a reference to the conformation of the head the cause of the malady of each. The conformation of the head, and the character of the insanity were found to be in perfect harmony. So far all was well. But, wishing a further test of the powers of Gall's philosophy, Esquirol requested Gall to observe the conformation first, and afterwards to tell him the character of the malady. Before this test Gall, of course, was struck dumb. This was straining phrenology a little too severely. We believe in much of the phrenological philosophy, but we cannot help feeling astonished that Gall should have so far committed himself(*a*).

(*a*) When Coomb first came over here as a phrenological missionary, he

In a late conversation which we had with M. Leuret, at Bicêtre, from whom we received the above anecdote, he stated it to be his conviction that either there existed no cerebral or physical change as a cause of insanity; or, if there were one, he did not know in what it consisted; that the cerebral lesions found upon examinations of the brains of lunatics explained lesions of the motor power, but were insufficient to explain the mental symptoms.

We are as much in the dark in regard to the pathology and nature of insanity, as we are as to the whereabouts of the “resources of medicine” alluded to in the foregoing censure of the Commissioners.

We have all of us “a vision of our own,” as Wordsworth says, and we have our’s. In speculating as to the nature of insanity, we feel inclined to believe,—presuming the encephalon to be the seat of the intellectual and moral faculties,—that the primary cause of the disease is as often to be found in the blood as in the structure of the nervous system. That healthy moral and intellectual manifestations demand the contact of healthy blood with a normal nervous system. In fact, we are inclined to look at insanity through the medium of humoralism. Consider for a moment how the mental manifestations are modified by the quality and quantity of blood circulating. Too little arterial blood to the brain produces syncope; too much produces coma. Change the quality of the blood by infusing into it either chloroform, nitrous oxide, ether, opium, henbane, stramonium, alcohol, &c., &c., and you produce true mental alienation artificially. Now we are inclined to believe that there are powers in the human body for generating mania-producing-compounds of equal or greater potency than any of the above, which, circulating with the blood, constitutes the primary cause of the malady. How, then, it may be asked, do moral impressions produce insanity? We answer, powerful emotions can induce the secretion of tears and of urine; they can augment or diminish cutaneous transpiration; they can make the countenance either white or red; suspend or vitiate the secretion of saliva, and perhaps most other secretions; or induce the absorption or promote the deposition of fat, &c., &c.; and why not cause the production, if there be a natural ten-

was shewn over the Richmond Lunatic Asylum, and made many admirable hits, it is said, as to the causes of madness and the previous characters of several of the inmates, by an examination of their heads. In a few years afterwards, when, without knowing it, the phrenologists pronounced Swift’s skull to have been that of an idiot, they got out of the dilemma by stating that, indeed, insanity always altered the cranium.—ED.

dency to the production, of this hypothetical mania-producing agent? In our observations regarding the succession of the phenomena ushering in the monomanias, we see, first, the presence of a given powerful emotion, afterwards morbid ideas are superimposed upon this emotive exaltation,—a series of phenomena agreeing precisely with our hypothesis. We perceive an analogy between fever and insanity. Fever is the result of a something introduced into the circulation from without. Insanity is the result of a something generated *within* the body and circulating with the blood. This peculiar something of fever has a general poisonous influence over every organ of the body. That of insanity, on the other hand, has a circumscribed and local influence,—the encephalon, or even certain portions of it only.

According to the Commissioners' Report, all the physicians of the English asylums use narcotics in the treatment of insanity, with the exception of those at Lincoln, where the use of them has been prohibited,—strange state of things,—by a manager's order forsooth! As remedial agents in insanity we think them useless: they are indicated occasionally for certain bodily conditions occurring in the progress of the malady, but they have no beneficial influence over the mental symptoms: and, if the homœopathic axiom, "*similia similibus curantur*," be a delusion, it is precisely what we should be led to predict, seeing that by their use we can induce madness artificially in the healthy individual. We will state a few of the numberless facts on record illustrative of this. Chardin states that among the Persians the artificial induction of madness by means of a decoction of poppies is a luxury; and that there are public haunts where this condition is served out to customers. He says that when the applicants for this disease enter the cabaret they are low-spirited and languid. Little by little, as they go on sipping the beverage, they become quarrelsome and enraged; everything displeases them; they repel every body, and quarrel among themselves. By and by, however, the scene changes. The ruling passion of each becomes predominant. The naturally amorous recount the charms of their mistresses. Another, half asleep, laughs from below his cloak. Another makes fun. Another tells ridiculous stories. In a word, one could easily believe that he was in a lunatic asylum. The Persians think that there is something supernatural or divine in this condition.

The historians of the Crusaders tell of one of the scheiks of the Bedouin Arabs, who had the power to inspire his followers with blood-thirsty propensities and courage by giving them

a potion called Hassich, from whence was derived the word Hashishen (eaters of herbs), and from whence we derived our word assassin. Hassich is to this day the name given in the East to the Indian hemp with alternate leaves, which when smoked intoxicates, and gave rise to a quarrelsomeness, and a degree of homicidal madness. Sylvester de Lacy states, that during the occupation of Egypt by the French army, the use of this plant was rigorously prohibited on account of this property(a).

The ancient Peruvians, according to Frezier, were accustomed to diagnose the characters and passions of their children by giving them a decoction of the spines of a grass named carapullo, which, he says, resembles the bromus catharticus. This produced a violent delirium which lasted for several days. While in this state they placed before them the tools of various trades, and their behaviour at this time was noted, and considered to be decisive of the capabilities and tendencies of the child. He says that this curious method of moral investigation rarely deceived them. We do not know whether they were equally successful with the phrenologists of our own day in this undertaking.

Pinel states that Kæmpfer swallowed, at a feast in Persia, an opiate composition which is common among them. He experienced an indescribable degree of joy, played ridiculous pranks, laughed excessively, and at the end of the feast mounted on horseback, believed that he was flying through the air above the clouds, circumambulated in imagination the vast circle of the heavens, and thought, in his madness, that he was a guest at the table of the gods. These facts, of which there are great numbers on record, illustrative of similar properties possessed by all the narcotics, coincide with the hypothesis we stated just now, and, moreover, induce us again to ask, where are we to find the "resources of medicine" spoken of so impressively by the Commissioners? Fœderé asked the question, "Why does opium act so contrarily in mania?" He answers himself thus: "Because opium always produces reveries in persons in the possession of their senses; it only augments those of persons already carried away by them, as in madness;" or, as he might have said, because the "*similia similibus curantur*," of the homœopathists, is a delusion.

It is rumoured that a Commission of Lunacy will forthwith be constituted for Scotland. The draft of a bill has already

(a) See Lane's *Modern Egyptians*, Wilde's *Narrative of Travel*, and Donovan's papers on Indian Hemp.

been published, proposing the establishment of such a corporation, and the speedy introduction of a bill with this intention into Parliament is looked for on all hands. A measure to provide for the establishment of more lunatic asylums in Scotland, or the extension of those already existing, is an obvious and clamant want; but it is a question whether such a Commission appears to be necessary in that country. The Lord Advocate should know that to meddle is one thing, to improve is another. What are the defects of the present system of public asylum management in Scotland, requiring the inspection and regulation of Commissioners? The visitations of sheriffs, and the exertions of private individuals, afford, we believe, all the security that can be desired, that the insane will be judiciously cared for; and the guardianship and watchfulness of these disinterested patrons and governors have produced the present state of perfection in the management of the Scotch asylums. Moreover, the appointment of resident medical governors to some of the asylums, both in Scotland and in Ireland, is, we think, an additional warrant for the proper management of these institutions. The late abuses in the management of the asylums of England called for the appointment of the present Commission of Lunacy, which has done, and is doing, its duty so efficiently.

In adverting to Scotch asylums, we must be understood to speak now of the public asylums only. We are convinced that it is in these alone that perfection of management will be found to obtain any where, whether there be a Commission or not; we should, therefore, like to see all asylums made public. The rights of the lunatic could not fail to be protected under the present system of management pursued in the Scotch and Irish public asylums. Scotland, however, requires a measure providing for the erection of a sufficient number of public asylums; and several additional asylums are just now about to be erected in Ireland.

Practical Observations on Midwifery, and the Diseases incident to the puerperal State. By ALFRED H. M'CLINTOCK, M. D., and SAMUEL L. HARDY, M. D. Dublin, Hodges and Smith. 1847. 8vo. pp. 368.

THE case books and documents connected with that noble institution, the Lying-in Hospital of this city, are, of course, the property of the Master, and the right of publishing them rests

solely with him; nor should we regret this, had each Master given us the benefit of his experience in the way Dr. Collins has done in his valuable Report.

The late Master, Dr. Charles Johnson, with his characteristic liberality and kindness, offered permission to his assistants to publish the records of the hospital during their three years of office; two of them, Drs. M'Clintock and Hardy, wisely availed themselves of this permission, and the result is the excellent volume we are about to introduce to the notice of the reader. The work has a value, however, far beyond its mere statistics: it may be taken as the exponent of the *practice* of the hospital under "one of its most distinguished masters;" and it bears the stamp of his acuteness, caution, and sound judgment.

The period embraced in this Report extends from January 1, 1842, to January 1, 1845, during which time 6634 women were delivered in the hospital, of 6702 children. Of the women, 2125 were pregnant for the first time. The deaths amounted to sixty-five, or 1 in every 102, an extremely low rate of mortality in such an institution: thirty-five of the deaths occurred amongst primiparæ; in eleven cases the cause of death was a non-puerperal disease; and four others were in a dying state on admission, which would reduce the mortality to 1 in 132.

The number of male children born in the hospital was

3551; of whom $\left\{ \begin{array}{l} 198 \text{ were dead born, and} \\ 62 \text{ were putrid.} \end{array} \right.$

The number of female children was

3151; of whom $\left\{ \begin{array}{l} 127 \text{ were dead born, and} \\ 80 \text{ were putrid.} \end{array} \right.$

Of the entire number of children 108 were premature, viz., fifty-two boys, of whom nine were dead born, and fifteen were putrid; fifty-six girls, of whom nine were dead born, and twenty-two were putrid.

After giving these general statistics, the Authors proceed to report upon natural, tedious, preternatural, and complex labours, convulsions, rupture of the uterus, twin births, funis presentations, ophthalmia neonatorum, and the management of still-born children. We shall give a slight notice of each of these chapters, merely remarking, previously, that they are remarkably well drawn up, carefully written, and display an unusual acquaintance with the writings of others, together with sound, judicious practical observations.

Under the term "natural labour" is included all those cases in which, according to the definition of Denman, the head pre-

sents, and the labour is completed in twenty-four hours, without artificial assistance. The number amounted to 5852, of which 1752 were primiparæ; sixteen of them (seven of whom were primiparæ) died; four of uterine phlebitis, two of peritonitis, two of phthisis, one of mania, one of arthritis, one of sloughing of the uterus and vagina, one of laceration of the peritonæal coat of the uterus, one of pneumonia and bronchitis, one of scarlatina, one of anasarca, and one from a tumour compressing the trachea.

Of the 5852 women, 3882 were delivered under six hours; 1398 between six and twelve hours; 426 between twelve and eighteen hours; and 146 between eighteen and twenty-four hours. In the entire number we find fourteen face presentations; fifteen with the face towards the pubis; and eight in which the hand descended along with the head.

As the work does not pretend to be a treatise on midwifery, the Authors have limited themselves to noticing a few important particulars in the management of natural labour. No one, we fancy, now doubts the value of the binder, but many seem to be very ignorant or careless in the mode of applying it. We agree with the Authors, that it ought to be applied before the expulsion of the placenta, as is the usual practice in the Hospital; that it ought to extend from the ribs to the trochanter; and that it ought to be applied firmly, and with equal, but not excessive pressure. The observations on supporting the perinæum are excellent. It is a great error to commence our support too soon; "we should abstain from giving any support until the increasing thinness of the part, and the extreme tension of the fourchette, indicate that delivery is near at hand:" the pressure should be directed from behind forwards, less firmly anteriorly, and great care taken not to draw the perinæum backward.

After-pains are best treated by calomel and Dover's Powder, or a full anodyne, followed by a dose of castor oil and turpentine the following morning. Turpentine fomentations are recommended when the pains are troublesome in the day time, or threaten to run on into inflammation. Drs. M'Clintock and Hardy have remarked that the severity of after-pains is generally inversely as the length of the second stage of labour.

In cases of tender nipples the practice of the hospital has been not to put the child to the breast until after the secretion of milk is established, but to rub the breasts, or apply "cere cloth," until the breast shall have become free, and then to permit the application of the child. Among the remedies for sore nipples used in the hospital are mentioned tincture of catechu, the solution of pure tannin, or a favourite lotion of Dr. Johnson's,

consisting of subborate of soda, chalk, spirit of wine, and rose water.

The chapter on natural labour closes with an admirable notices of uterine phlebitis and puerperal mania, which are too long to quote, but which we recommend to the careful perusal of our readers.

The total number of *tedious labours* amounted to 259; of these 173 were delivered without instrumental assistance; but thirty of them got ergot of rye, and ten only of the children were born alive; thus affording distinct confirmation of the remark of Dr. Beatty and others, that ergot does exert a certain amount of deleterious influence upon the fœtus, as in nearly every one of these cases there was evidence of the child being alive at the time of its exhibition. In sixteen cases, delivery was effected by the vectis; in eighteen by the forceps; and in fifty-two by the perforator and crotchet.

“Twenty-two women died out of 259; and nineteen of these fatal cases were primiparous women. Of the children we find that 154 were boys, of whom eighty-three were born alive; and 105 were girls, of whom fifty-six were born alive.”—p. 96.

In eighty-eight cases the principal delay was in the first stage; in 119, in the second stage; and in fifty-two cases both stages were protracted. We are glad to find the Authors recognise the importance of distinguishing between delay in the first and second stages: their observations fully bear out the opinion of others, that the danger of delay in the first stage bears no comparison to the danger of delay in the second stage. The cause of delay in the first stage was almost always a rigid, unyielding state of the os uteri; and the treatment in the hospital consisted of tartar emetic, bleeding, and the warm bath.

The second stage was prolonged from various causes: the most frequent were inertia of the uterus, disproportion between the size of the child and the pelvis, or a combination of these two causes. As a remedy for the first of these causes we have the ergot of rye; and the Authors have given us the result of many careful observations on this subject.

The cases in which it was given were those of inert uterine action; those in which, without any discoverable pelvic deformity, the head was arrested at the brim; and those in which unfavourable symptoms calling for delivery manifested themselves, while the fœtal heart was still audible, but where the use of the vectis or forceps was inadmissible, but not from impaction of the head. The pulsations of the fœtal heart were found

to be an accurate test of the influence of the ergot upon the child; when these became diminished in frequency, depressed in strength, or intermittent, it was necessary to have recourse to instruments if the child was to be saved.

In deciding upon the choice of instruments, the stethoscope was found of extreme value, as, if the child be dead, craniotomy is clearly preferable to the forceps. Nor is it less useful in deciding upon the time for operating; for if, after ascertaining that the action of the foetal heart is natural and regular, we find that in the progress of labour it becomes gradually quicker, weaker, or irregular, we may conclude that no time is to be lost if we wish to save the infant. But we cannot too carefully remember the judicious remark of the Authors, that the diagnostic value of auscultation depends upon *comparative observations*, and not upon a solitary application of the instrument^(a).

The vectis used occasionally was one blade of the forceps, and it was always employed more as a tractor than as a lever. The short, straight forceps was the only one used, and the conditions were, that the child should be alive, the head have remained stationary within reach of the forceps for six hours at least, the membranes ruptured, the os uteri fully dilated, the ear within reach of the finger and the soft parts free from inflammation.

In all the cases but three in which craniotomy was performed for difficult labour, the Authors were fully assured of the child's death before the operation; and when once convinced of the child's death, "it was not the practice of the hospital to wait for the full development of bad symptoms before using instruments, as nothing could have been thereby gained, and the patient's life might have been compromised by such culpable procrastination."

The total number of *preternatural cases* was 227: 101 of which were breech cases; thirty-seven of these children were still-born, of which twenty-one were putrid; twenty-four were premature, eighteen of which were still-born. Of the 101 children, fifty-eight were males, and forty-three females; sixty-four were born alive, of which thirty-five were boys. Two of the mothers died.

There were thirty-eight footling cases (inclusive of the twin cases): eighteen of the children were dead born, of which thirteen were putrid; fourteen were premature, of which one was

(a) See Dr. M'Clintock's observations on the use of the stethoscope in midwifery, in Number VII. of this Journal.

born alive, two dead, and eleven putrid. Of the twenty children born alive, six were boys; and of the entire number, thirteen were boys, and twenty-five girls. One mother died.

There were twenty-six presentations of the shoulder or arm, including six which occurred among twin children: in nineteen cases version was performed, and fourteen children were born alive. In four cases evisceration was performed. Of the twenty-six children, twelve were dead born, of which six were putrid; eight were premature; thirteen were male, and thirteen female. Two of the women died.

The Authors recommend evisceration rather than turning in cases of difficulty, when the child is dead; and in turning they advise the bringing down of one leg rather than both, for reasons which appear to us to be sound and judicious.

The first section under the head of *complex labours* is hæmorrhage, and the subject is not only one of deep interest, but treated in a very able manner. The Authors record thirty-seven cases of hæmorrhage before delivery; twenty-nine of accidental, and eight of unavoidable hæmorrhage; the placenta being partially over the os uteri in five cases, and completely covering it in three cases. Three of the unavoidable cases were delivered by the natural efforts, one by the forceps, and four by turning. Three women died, one from exhaustion, and two latter from phlebitis.

Of the twenty-nine cases of accidental hæmorrhage, in fourteen the membranes were ruptured, and delivery was effected by the natural powers alone: in thirteen the hæmorrhage was restrained by other means, such as cold, stimulating enemata, ergot, &c., and labour terminated naturally. In one case the forceps was used, and in one the perforator and crotchet. Eighteen children were born alive, nine dead, and two putrid. Of the twenty-nine women four died.

When the membranes could be felt, in any case of hæmorrhage, they were ruptured; and if the uterine action was inefficient, stimulating enemata, or ergot of rye were given. Turning was rarely called for in such cases.

Drs. M'Clintock and Hardy confirm the statement of M. Naegelè, as to the value of the stethoscope in the differential diagnosis of hæmorrhage; we can also bear witness that in some very difficult cases it has determined the line of treatment. The tampon was used before the os was dilated, and when it was covered by the placenta, great care being taken, at the same time, to guard against internal flooding. No case occurred in which the placenta was expelled before the child, and both Dr. Johnson and his assistants seem decidedly opposed to

its extraction as recommended by Dr. Simpson. Our Authors speak very highly of the effects of opium in uterine hæmorrhage as a general stimulant, subject, however, to the drawback, in accidental hæmorrhage of its power of suspending uterine action. They observe very justly that in operating it is better to introduce the hand wherever it passes the placenta most easily, and this was invariably beside the placenta, between it and the uterus.

Hæmorrhage occurred between the birth of the child and the expulsion of the placenta in thirty-one cases; in ten it was very profuse. In twenty cases the placenta had to be extracted, and five of these women died,—one of exhaustion, and four of uterine phlebitis: none of the others died. In twenty-five cases the hæmorrhage was subsequent to the expulsion of the placenta; two died, one of the effects of hæmorrhage, and the other of uterine phlebitis.

During the period of the Report, twenty-eight cases of retained placenta occurred, in which the hand had to be introduced for its removal; in sixteen it arose from inertia of the uterus; in eleven from morbid adhesion; and in one from hour-glass contraction. Dr. Johnson and his assistants agree with Dr. J. C. Douglass, that hour-glass contraction is a secondary affection. A very wise rule was observed in the hospital with regard to the ergot of rye,—never to give it in retained placenta unless the placenta was completely detached, for the very good reason that, if the placenta were morbidly adherent, it would add seriously to the difficulties.

As regards convulsions, the observations of Drs. M'Clintock and Hardy add confirmation to those of Dr. Lever, that the urine is albuminous. The Authors dwell strongly upon the importance of marking the earliest premonitory symptoms, such as headach, tinnitus aurium, flashes of light, œdema of the face, &c., in order that, by proper treatment, we may prevent these alarming seizures. In all such cases, when the woman was of a full habit, bleeding from the arm, to ten, twelve, or fourteen ounces, was practised, a mercurial purgative was given, and the bowels were kept free. Open air exercise and unstimulating diet were enforced, and if the patient could remove to the country for a time so much the better. When the headach continued, leeches were applied to the temples, or the bleeding was repeated.

“In cases where the predisposition is strong and difficult to eradicate, besides using these remedies, Dr. Johnson is in the habit of giving James's Powder after the following manner: he begins with a small dose at bed time, and continues increasing it every night by

one grain at a time, until it produces some sensible effect, or until the dose amounts to ten or twelve grains, when it is omitted."—p. 266.

In convulsions, also, we have another instance of the value of the stethoscope. By it we may often prognosticate whether the patient will go on to her full time; and during labour, the effect of the convulsions upon the action of the foetal heart may decide both the time of operating and the instruments to be used. The Report confirms what has been so often remarked, that women are much more liable to convulsions in their first than in subsequent pregnancies; but it disproves the assertion of M. Moreau, that advanced age in primiparæ is one of the strongest predisposing causes of convulsions.

It is worthy of remark, that in three or four women subject to epilepsy, the fits were less frequent and severe during pregnancy, and that they did not seem more liable than others to puerperal convulsions.

The remedies used in this complication were, copious blood-letting, free evacuation of the bowels, tartar emetic, and cold affusion to the head and face, with a guarded attempt to anticipate the uterine or abdominal inflammation by small doses of blue pill.

Thirteen cases of convulsions occurred; ten were first, and three second pregnancies: two of the latter had convulsions in their first labours. In ten cases convulsions came on before delivery, and in two of these they continued after delivery; in three the attack came on after delivery; six were delivered naturally by the crotchet, two by the forceps, and one by the vectis: three cases ended fatally.

The chapter on *rupture of the uterus* is very good; considerable care has been bestowed upon the consideration of the minatory symptoms, and the following is a brief summary. 1. The history of former labours, shewing deficiency of space, as, for instance, the labours having been difficult, the children dead born, or only the females born alive; 2. previous disease, indicated by a fixed local pain, as pointed out by Dr. Murphy; 3. during labour extremely violent pains, with little or no interval; 4. the occurrence of a crampy pain; 5. cramps in the legs, accompanying the violent uterine action. The symptoms which indicate that rupture has taken place are, 1. a sudden and acute pain in some part of the uterus, quite different from labour pains; 2. vomiting, at first of the ingesta, then of a coffee-ground liquid; 3. collapse, debility, and prostration; 4. a distended and very painful state of the whole abdomen; 5. sudden cessation of the labour pains; 6. discharge of blood

from the vagina; 7. recession of the presenting part; 8. the limbs or body of the child discernible in the abdominal cavity; 9. the speedy cessation of the pulsations of the foetal heart. Into the various modifications of these symptoms, their absence, and their precise value, Drs. M'Clintock and Hardy have fully entered, and we think they have succeeded in placing the subject in a clearer light than it was before.

Nine cases of laceration occurred, and all terminated fatally; two were delivered by the natural efforts, one by the forceps, two by the perforator and crotchet, and four by turning. Eight of the children were boys, all born dead; one, a girl, born alive. One woman died nine hours after the accident, one in fifteen, and one in sixteen hours. Two died on the second day, two on the third, one on the fourth, and one on the fifth day.

During the three years there were ninety-five women delivered of *twins*: two of the mothers died, one of hæmorrhage after delivery, and the other of uterine phlebitis. Of the 190 children, 171 were born alive; in eighty-five first born, and eighty-six second born; ten boys were dead born, and nine girls. In thirty-eight cases two boys were born together; in twenty-two cases two girls were born together; and in thirty-five cases a boy and a girl were born together.

Only one case of triplets occurred, but the authors mention, in a note, a very curious case of an abortion of five foetuses, which was some years ago shewn to the Obstetrical Society by one of the late Masters of the hospital, Dr. Evory Kennedy.

After the birth of the first child, the practice of the hospital has been, at once to rupture the membrane of the second, and if the presentation be natural, and there be no complication, allowing a fair trial to the natural powers, instead of delivering by turning after a given time. Stimulating injections, and gentle friction on the uterus, were employed and were successful, for in no instance was it necessary to turn and deliver, except one where the arm presented. Of course bad symptoms on the part of the mother, preternatural presentation of the child, or the occurrence of convulsions or hæmorrhage, will require prompt and artificial interference.

Thirty-seven cases of *funis presentation* occurred. In one case of twins the funis descended below the presenting part of each foetus. Twelve children were born alive, i. e. eight boys and four girls: nine of these presented with the head, two with the feet, and one with the arm. In five cases the funis was returned above the head; one case was delivered with the vectis, and the remaining six were not materially interfered with.

The Authors prefer reposition of the cord when possible, to

delivering by version, as recommended by many writers, because the probability of saving the child is not worth the increased risk to the mother. There are, however, cases in which the use of the vectis or forceps may save the child by hastening the termination of labour.

The work before us concludes by a short chapter on ophthalmia neonatorum, and another on the management of still-born children. In the former we find that the practice of the hospital was to apply one leech at the outer canthus of the affected eye, followed by poultices, during the first stage; and during the second stage, when the discharge has become thick and purulent, the solution of nitrate of silver (first used there, if we mistake not, by Dr. Ivory Kennedy), with poultices of meal and water, or of the curd of milk coagulated with alum.

The object of the chapter on still-born children is mainly to direct attention to the value of the stethoscope, and of artificial respiration. We are all aware how deceptive the appearances of still-birth are; how often it happens that a child supposed to be dead is restored to life by perseverance in the use of means; and all must have felt how desirable it is to have some positive test of life and death. This is effected by the stethoscope, applied over the region of the heart. If no pulsation be heard, our efforts will be altogether in vain, but so long as it is audible we ought not to relax our endeavours. In the hospital the attempt to inflate the lungs artificially by means of a large elastic catheter, seems to have been very successful, and the process is described with care and accuracy.

We have now laid before our readers a sketch of the contents of this valuable Report,—sufficient, we hope, to induce them to procure the book and read it for themselves, with the care and attention it so well deserves. It is written in a clear, manly style, with a full knowledge of the subject, and indicating not merely great practical tact and experience, but extensive acquaintance with obstetrical literature. The reference to the labours of others, and the quotations from their writings, are candid and judicious,—amply sufficient, without over-loading the book. To each chapter or section is annexed a carefully compiled table, a summary, in fact, of the cases referred to, not only valuable in itself, but as affording a vast amount of collateral facts for future investigation. We have no hesitation in saying that these tables, taken in conjunction with the more extensive ones of Dr. Collins, constitute the best midwifery statistics ever published.

We congratulate the profession, as well as Drs. M'Clintock and Hardy, upon the publication of this volume; it is of great

practical value to us, and most creditable to the Authors; and in conclusion we heartily wish it the success it deserves.

The Danish Government lately sent a distinguished physician, Dr. Levy, to report upon the merits of the different lying-in hospitals in the British islands. This report (see No. 3, in Books Received), speaks of the management of our hospital in the highest terms.

The London and Provincial Medical Directory. 1848. London, Churchill, pp. 432.

THIS very useful publication does great credit to its spirited publisher. The first work of the kind which appeared in Great Britain was the "Irish Medical Directory," edited by Dr. Croly, of Mountmelick, published in 1843. We have much reason to regret that that valuable little book did not receive, from the profession in Ireland, support such as it deserved, and such as might have encouraged Dr. Croly to bring out an annual edition. It must be considered, however, that it was a novel experiment; and we have little doubt but that, if continued for a few years by a publisher possessed of sufficient enterprise, and improved from time to time, so as to meet the increasing wants of the Profession, such an annual would ultimately become indispensable to every medical man in this country, and sufficiently remunerative to its proprietor. In order that we may foster the desire for such a periodical among the profession in Ireland, we shall devote a short space to the description of the London and Provincial Medical Directory for the year 1848.

This work constitutes a thick octavo, handsomely bound and gilt, the price of which is eight shillings and sixpence. We mention this, as it is probable that one of half the size would answer for Ireland. The contents commence with a well arranged *diary*, with sufficient space to contain memoranda for every day in the year. The days and hours upon which learned societies meet are distinctly marked in this diary, together with some other matters which it is important to remember. Then comes the London Directory, in which are described the name, addresses, qualifications, appointments, and published works, of nearly every known qualified physician, surgeon, and general practitioner, resident in London and its immediate vicinity. Then follows a very remarkable and important feature in this work, namely a list of persons known to be practising in or about London, who have neglected to send in a return of their qualifications, although repeatedly applied to,

and whose names cannot be found in the published lists of members or licentiates of the various licensing corporations in England. Of course it is reasonable to infer that such persons have no qualifications. After this list is an obituary of the medical men who have died in London during the past year. Then there is a list of the medical referees of the metropolitan assurance offices ; and another of the medical periodicals published in Great Britain. The officers and regulations of the various medical corporations, as well as of the various boards which preside over the public medical service ; to these are added ample details as to the London schools, hospitals, and dispensaries, and an enumeration of the officers and objects of the various learned societies of the metropolis, concludes the first part of the Directory.

The Provincial Medical Directory commences with a list of the medical practitioners of England and Wales, arranged according to the counties and towns in which they are located. This is a most useful list, because it at once displays the qualifications of those contained in it, under the head of each locality, and, by implication, the want of qualification by those omitted. Then comes an alphabetical list of the names, to which are appended the qualifications, addresses, appointments, and published works, of the provincial physicians, surgeons, and general practitioners. After this we find a supplemental list of those practitioners who have not given any account of their qualifications. The remainder of this portion of the Directory contains a quantity of information useful and interesting to the practitioner ; an obituary, a list of colleges and universities in the United Kingdom ; the provincial hospitals and dispensaries, poor law unions, &c. ; together with an account of the fees claimable by medical witnesses.

We consider a publication of this kind, when well executed, as a boon of the greatest value to every qualified medical man, practising in the country for which it is intended ; and we earnestly hope that we shall not be long without an annual and corrected edition of the similar work with which Dr. Croly has favoured the practitioners of Ireland. Dr. Croly's work affords us the only approximation known as to the number of our practitioners.

The Preservation of Infants in Delivery, &c. By RICHARD KING, M. D., M. R. C. S.

THIS is an ingenious little *brochure*, the object of which is to prove that the common opinion, that in some ordinary cases of

delivery, and in many extraordinary ones, death is caused by pressure on the cord, is not true; that it does not result from cerebral congestion, owing to the arrest of the circulation, but rather from a contrary condition,—not from asphyxia, but from syncope:

“In fact, from the want of compression on the umbilical cord, and not from the dreaded compression of it. The premises are these. Just before the after-birth is thrown off, it is at its maximum of contraction, and therefore preventing the escape of blood from the infant, and immediately afterwards at its maximum of expansion as favouring the escape of blood from the infant. This is a matter of little moment in the natural delivery, because the new life that is set up the moment the head is born encourages the new and discourages the old circulation; but it is all-important in the preternatural delivery, for then it acts as a moist sponge would act when released from the hand, and placed in contact with water. It is from this congestion in the after-birth that I believe the death of the infant occurs within the space of time at which the practice of our best accoucheurs has fixed it.”

“The death blow is, therefore, given before the umbilical cord is even threatened with compression.”—p. 39.

Account of a new Anæsthetic Agent as a Substitute for Sulphuric Ether in Surgery and Midwifery. By J. Y. SIMPSON, M. D., Professor of Midwifery in the University of Edinburgh. Edinburgh. 1847. Pamphlet.

Anæsthetic and other therapeutic Properties of Chloride of Formyle. By J. Y. SIMPSON, M. D., &c. From the Monthly Journal of Medical Science, December, 1847.

Answer to the religious Objections advanced against the Employment of anæsthetic Agents in Midwifery and Surgery. By J. Y. SIMPSON, M. D., &c. Edinburgh. 1847. Pamphlet.

Remarks on the Superinduction of Anæsthesia in natural and morbid Parturition: with Cases illustrative of the Use and Effects of Chloroform in obstetric Practice. By J. Y. SIMPSON, M. D., &c. Edinburgh. 1848. Pamphlet.

OUR Journal was among the first to check the ardour with which the discovery of the application of ether to prevent pain during surgical operations, was received by the medical profession throughout the world. We pointed out the necessity of receiving with caution statements made as to the action of an agent, the use of which was likely to cause an era in the history of medicine, and the ultimate effects of which there had

not been time for testing. We even went so far as to say that accidents were liable to occur from the inhalation of ether, and to prophesy that, when they did, the rage for its employment would be checked.

Our statement, and the consequent prophecy, were soon proved to be so correct, that attention was rapidly directed in many quarters to the discovery of a substitute free from the deleterious influence which ether was generally admitted to produce in some cases. Of various substitutes which have been proposed, one,—chloroform,—has been found to fulfil completely the necessary requisites. This fluid was tried by Professor Simpson, at the chance suggestion, as he himself states, of Mr. Waldie; but it is to the former, who was the first to test it practically, to discover its advantages, and to bring it before the profession, that the whole credit is due for a discovery little, if at all, inferior to that of the original application of ether.

In this matter we know not whether to admire more the originality which first led Dr. Simpson to the practical investigation of the effects of this new agent, or the energy and perseverance with which he has followed up his discovery, and thereby caused it, within a few weeks, to supersede ether altogether. His talent and energy were familiar to us, who had the advantage of attending the valuable lectures on general pathology, which he so frequently delivered to the class of the late Professor John Thomson, in the University of Edinburgh; but we confess that we did not expect such a display of industry, such a devotion of time, as he has bestowed on this subject, now that he has attained the position and extensive practice in that branch of the profession to which he has devoted himself.

We do not mean in this short notice to enter into any history of the chemical properties or inhalation of chloroform, as at some future time we purpose to recur to the subject, when longer experience shall enable us to enter into some statistical details. For the present we merely wish to call the attention of our readers to the discovery, and to the conditions necessary to produce the complete anæsthetic and soporific effects of chloroform, as stated by Dr. Simpson at the meeting of the Medico-Chirurgical Society of Edinburgh for December 15, 1847, and which we condense from the report in the January Number of the *Edinburgh Monthly Journal* :

1. The chloroform vapour must always be exhibited as rapidly and in as full strength as possible, if you desire to have its first or exhilarating stage practically done away

with and excluded ; and you effect this by giving the vapour so powerfully and speedily as to apathize the patient at once. 2. In order that the patient be thus brought as speedily as possible under its full influence, the vapour should be allowed to pass into the air tubes by both the mouth and nostrils ; and hence all compression of the nostrils, &c., is to be avoided. 3. The vapour of chloroform is about four times heavier than atmospheric air, and hence, if the patient is placed on his back during its exhibition, it will, by its mere gravitation, force itself in larger quantities into the air passages than if he were erect or seated. 4. The best means of exhibiting chloroform with these indications is the simple handkerchief gathered into a cup-like shape in the hand. 5. Mental excitement of all kinds, from whispering and talking around the patient, is to be strictly avoided, if possible. 6. The quantity required is generally about a drachm ; but the better way is to wet freely the bottom of the cup formed by the handkerchief, and if the patient be not affected in a minute or so, a little more may be added. 7. It evaporates rapidly ; and you must not, therefore, delay for a minute or more after wetting the handkerchief before applying it, as is sometimes done, but apply it immediately. In conclusion,—when the patient is just becoming insensible, he will not unfrequently withdraw his face, or forcibly push aside the handkerchief. If you then fail to re-apply it to his face and keep it there, you will be liable to leave him merely excited. The simplest test of its full and perfect effect is some noise or stertor in the respiration.

It does not appear that ether was employed in midwifery practice in Dublin, at least in more than one or two cases, but the use of chloroform has been already introduced here in the treatment of labour, still, however, in very few instances. It is constantly employed, and with the most happy results, in our general hospitals. Mr. Wilde informs us that he has used it in several cases of painful plastic and other operations upon the face and lachrymal appendages ; and that in two instances he witnessed the peculiar phenomena of the patient being rendered insensible to pain, although apparently not unconscious of what was going on around, the patients having been engaged in incoherent conversations with some of the students ; and that in both of these cases the sense of hearing was greatly exalted. He is of opinion that it will not, any more than ether, be generally applicable to operations upon the globe, or the interior of the eye, inasmuch as, during the performance of these latter, a certain amount of volition is necessary on the part of the patient, as in the operation for strabismus, extraction of cataract, &c.

On Poisons in Relation to Medical Jurisprudence and Medicine.

By ALFRED TAYLOR, F. R. S., Lecturer on Medical Jurisprudence and Chemistry in Guy's Hospital. London, John Churchill. 1848. 12mo. pp. 855.

IN no branch of medical science is the modern advance of knowledge more characteristically displayed than in forensic medicine; and by none has greater security been thereby given to human life. The chance of impunity is the greatest stimulus to crime; and the discovery of means by which its detection is rendered more facile, must be, therefore, looked upon as the most important prevention to its commission.

In the middle ages the science, for so we must term it, of *secret poisoning*, attained an extraordinary degree of perfection in France and Italy, so much so that many believe it was not discovered until the seventeenth century; but there is unquestionable evidence of its having been known to the ancient Greeks and Romans. At this period no life was safe; and in every large town we read that a profitable trade was carried on by certain individuals, usually females, who possessed the knowledge, as Beckmann quaintly writes, "of freeing wives from disagreeable husbands within stated weeks and days." This latter observation has induced some of the most learned physicians to disbelieve altogether in the art of secret poisoning; but although we would be slow to credit many of the statements of the writers of the sixteenth and seventeenth centuries as to the extraordinary powers of those *poisoners*, we cannot avoid believing that they possessed knowledge as to the mode of preparation, and the effects of poisons, especially in certain combinations, which is completely unknown to the moderns.

Of all the adepts in the art of poisoning, from the days of Locusta who supplied Agrippina with the means of getting rid of the Emperor Claudius, as described by Tacitus, down to those of the Marchioness de Brinvilliers, who was executed at Paris on the 16th of July, 1676, none acquired more fame, or has handed an infamous reputation with more certainty down to posterity than the woman Tophania, a native of Palermo, but who afterwards resided at Naples. "She sold those drops," writes Beckmann, "which from her acquired the name of *aqua Tophania*; *aqua della Toffana*; and which were called also *acquetta di Napoli*, or only *acquetta*; but she distributed her preparation by way of charity to such wives as wished to have other husbands. From four to six drops were sufficient to destroy a man; and it was asserted that the dose could be so propor-

tioned as to operate in a certain time.”(a) Before her execution this woman confessed to have caused the death of not less than 600 persons.

The composition of this preparation which possessed such wonderful powers, of course, attracted much attention. All accounts of it agree in stating, that it was a clear, insipid water, which never betrayed itself by any extraordinary or immediate effects, and the most generally received opinion as to its composition (with which our author, Mr. Taylor, agrees), is that it was simply a solution of pure arsenic in distilled water. This view of its composition cannot, however, be correct, for arsenic is so very insoluble in distilled water,—water at ordinary temperature dissolving only from an 800th to a 400th of its weight,—that it would require 1600 instead of six drops to cause death, admitting the validity of Mr. Taylor’s assertion, that four grains have, in some cases, destroyed life; according to Dr. Christison, however, the smallest fatal dose on record is thirty grains: besides, a solution of arsenic would soon become decomposed; and Tophania was in the habit of distributing her poison in small glass phials, terming it *manna of St. Nicholas of Bari*, so that the purchasers might keep it by them until a favourable opportunity offered for its use. The same argument applies to the statement of the Abbé Gagliani, who affirmed that it was a liquor obtained from a mixture of opium and cantharides. We are thus forced to believe that the exact composition of this extraordinary poison is unknown, and that the knowledge of its mode of preparation has been lost. Fortunately for mankind, chemical science in the present day is directed to the discovery of means for detecting poisons already in use, and not to the invention of new or more powerful ones. “It is not because we know less,” says Dr. Duncan, in the Supplement to the *Encyclopædia Britannica*, “but because we know a great deal more than our forefathers, that the art of secret poisoning seems to be lost.”

There were, we believe, few countries of the ancient world, at least those in which civilization had made any progress, in which the effects of poisons were unknown or untried. We have already said that the ancient Greeks and Romans were well acquainted with them; and the Saracens, who at one period possessed a much more extended kingdom than either, were in the habit of using them, and, it would appear, with a scientific skill, which even the school of René,—chemist, and consequently poisoner to Catherine de Medicis,—could not ex-

(a) Beckmann’s *History of Inventions*, Bohn’s edition, vol. i. p. 52.

ceed. Thus Ockley, in his admirable History of the Saracens, informs us that Hassan, fifth caliph after Mohammed and his grandson, died of poison administered to him by one of his wives, in the year of the Christian era 669; and Major Price, who closely followed the Arabian manuscripts, in his elaborate "Mohammedan History," adds that the method which she adopted in the accomplishment of her design was not less remarkable than its consummate perfidy; for upon an occasion of anointing her husband's person after the bath, she used a napkin which she had previously impregnated with poison, which soon pervaded the frame of Hassan, and speedy and inevitable death was the consequence(a).

It will not surprise our readers to learn that the ancient Irish, with their advancement in learning, were also skilled in this secret art. In the Leabher Breac, a manuscript of the fourteenth century, it is related, at fol. 15, that "St. Patrick, being at Tamar, the Druid Lucat Mael put *a drop* of poison into Patrick's drink, and put it into Patrick's hand: Patrick blessed the drink and turned the vessel upside down, and the poison dropped out of it, but no part of the ale did. Patrick then drank the ale." This occurred A. D. 432 or 433, and the book in which it is related is a copy of a very much older MS. No matter how apocryphal this statement may be, it is sufficient proof that in the fourteenth century it was known in Ireland how poison could be prepared of so powerful a nature that a single drop of it would be a fatal dose, or the writer of the manuscript would not have dared to narrate this amongst other miracles performed by the Saint.

The following extract, translated also from a manuscript of the fourteenth century, proves that the effects of *slow* or secret poisons were likewise known at a very early period in Ireland:

"Anno Domini 366. Eoghy Moymedhon, monarch of Erinn, died. He left four sons by his wife, Mongfinne (the fair-haired), the sister of Crimthann More, King of Munster. This Crimthann, on the death of Eoghy, assumed the monarchy of Erinn, to the prejudice of the young princes, his nephews, and having made an expedition into Scotland, his sister availed herself of his absence, raised a revolution at home, and enabled her sons to seize upon the country, giving the supreme rule to Brian, her eldest son. Crimthann, hearing of this in Scotland, hastened home, and, marching into Connaught, encamped on the bank of the River Moy. Mongfinne took counsel now, and the counsel was, to invite her brother to a

(a) Ockley's History of the Saracens, Bohn's edition, p. 350.

feast on Dornglas Island, in the River Moy, for the purpose of procuring his death by treachery. She then repaired to her brother's tent, and made a pretended peace with him on the part of her sons. She then invited him to go and see the feast she was preparing for him, to which he consented. When they had inspected the feast she put a poisoned cup into her brother's hand, requesting him to drink it. 'I shall not,' said Crimthann, 'till you have drank first.' She drank a drink, and Crimthann drank after her. Mongfinne died upon Samhain's night (Allhallow-Eve). Crimthann went southward then to his own country until he reached Sliabh-oighidh-an-Righ (the Mountain of the King's Death) in Clare, where he died and lies buried."(*a*)

The French chemists were undoubtedly the first to direct their special attention to the investigation of the action of poisons, their antidotes, and the means of detecting them. Nor is this to be wondered at, for in no part of the world did the administration of poisons with felonious intent become so common as in France, from the middle ages downwards. It was not, however, until the appearance of Orfila's treatise early in the present century, that this department of forensic medicine could be said to rest on any certain basis. Previous writers had adopted loose statements as to the effects of reagents on various poisons, without testing their accuracy by direct experiment; but here were to be found original chemical investigations, not on one or two poisons, but with reference to all, and in no instance was a statement made, no matter how great the authority, that was not rigorously tested.

This method of treating the subject has influenced all who have since published general or special works on medical jurisprudence. Christison, whose great work on poisons has justly earned for him a never-dying fame, closely followed Orfila's footsteps, so far as related to original experiment and investigation; and Mr. Taylor, whose work is now before us, is no unworthy disciple of the same school.

In our review of Mr. Taylor's *Manual of Medical Jurisprudence* in the second volume of our New Series, we have already passed a high panegyric on the manner in which the subject of poisoning was treated, and the extended space which a special treatise on this department affords, has enabled him to supply any deficiencies which the limits of his book then rendered necessary. We thus find that the treatment of poison-

(*a*) Book of Ballymote, fol. 145. For the above references and translations we are indebted to our friend Mr. Eugene Curry, the distinguished Irish scholar and transcriber.

ing now receives a due share of attention; the various chapters are much extended, many new ones added, and the entire subject brought carefully down to the very day of publication.

The first fourteen chapters are devoted to the consideration of a question, in general too superficially studied by the medical profession, and concerning which some most extraordinary and vague notions exist, namely, *medical evidence in cases of poisoning*. They are written in clear, simple, but forcible language, not to be misunderstood by the meanest capacity, and written too as the result of an extended experience, which has rarely fallen to the lot of any one man, for Taylor is now the Orfila of England. They deserve to be studied, and must be studied by all who have the least ambition to acquit themselves with credit, if required to give evidence in a case of poisoning. It is to our brethren practising in the country, remote from large libraries, and often, too, from the advice or assistance of other medical men, that a knowledge of the rules here laid down will prove an invaluable acquisition, comprising as they do, not alone the chemical but the legal information which they so often stand in need of. As an example of the latter, we make the following extract:

“ON THE USE OF NOTES.—It has been already recommended as a rule in these criminal investigations, that a practitioner should make notes of what he observes in regard to symptoms, *post mortem* appearances, and the results of a chemical analysis. From the common forms of law in this country an individual charged with the crime of poisoning may remain in prison, if at a distance from the metropolis, for some months before he is brought to trial. It is obvious, however clear the circumstances may at the time appear to the practitioner, that it will require more than ordinary powers of memory to retain for so long a period a distinct recollection of all the facts of the case. If he be unprovided with notes, and his memory be defective, then the case will turn in favour of the prisoner, for he will be the party to benefit by the neglect of the witness. In adopting the plan here recommended, such a result may be easily prevented. It may be remarked that the law relative to the admissibility of notes or memoranda in evidence, is very strict, and is rigorously insisted on by the Judges. In order to render such notes or memoranda admissible, it is indispensably necessary that they should be taken on the spot at the time the observations are made, or as soon afterwards as practicable. It is not necessary to their admissibility as evidence that the observations should be written down by the practitioner himself, provided they are made under his immediate inspection at the time, or at his suggestion, and are soon afterwards looked over and corrected by him. Thus, whenever at a trial a medical witness produces notes for reference during his examination, the question is invariably put to him as to when the

notes were made; their admissibility depends upon his answer. Many examples might here be cited of the rejection of notes made by medical witnesses, owing to a non-observance of these points. On the trial of *Sir A. Gordon Kinloch*, at Edinburgh, for the murder of his brother, the surgeon was about to give his evidence respecting the wound of which the deceased had died, from notes made some time after the event, when he was stopped by the Judge, who explained to him the law on the subject. The reason why the law so rigorously excludes the admission of memoranda in evidence, made at a distance of time, appears to be this : it prevents the possibility of all fraud or collusion on the part of the witnesses, either to favour or injure the prisoner; for a connected story might, it is presumed, by such means, be so made up, at a distance of time, as to defy the ingenuity of counsel at either side to make out the deceit. The notes used by a witness should be original, and not a *copy*, of notes made by another. A copy of notes, except under very peculiar circumstances, is not admissible as evidence.

“There is another rule of law with respect to the use of notes or memoranda in evidence, which is not, perhaps, so generally known to medical practitioners, but it is essential that it should be observed. The notes may have been fairly made on the spot in the manner required by law, but when a witness is about to refer to them, he will probably be asked whether he is using them for the purpose of refreshing his memory, or whether he is about to speak only from what is written on the paper, without having any precise recollection on the subject. If he is referring to them for some fact which he has altogether forgotten, then the notes are *pro tanto* inadmissible as evidence, for it has been held by our Judges that notes can only be used in evidence for the purpose of refreshing the memory on a fact *indistinctly remembered*: they are not to be permitted for the purpose of reviving impressions entirely forgotten. The most eminent legal writers lay it down, that if there be any single point in the notes which the witness does not recollect, except that he finds it there written, such point is not evidence. Notes are only allowed to assist recollection, not to convey information.”—p. 105.

This extract is, we think, sufficient to enable our readers to judge of the character and value of the information contained in Mr. Taylor's volume. It, indeed, needs no praise of our's; its extraordinary cheapness, its beautiful typography, its portability, all speak for themselves; and Mr. Taylor's previous work, with the vast experience he has since acquired, is a sufficient guarantee for its contents. For ourselves, we feel confident that it will ere long be the table-book of every medical practitioner who has the least regard for his own reputation, and be found in the circuit-bag of the barrister in company with Archbold's Criminal Pleadings and Roscoe's Criminal Evidence.

A Hand-Book of Field Botany, comprising the Flowering Plants and Ferns indigenous to the British Isles, arranged according to the Natural System; the Orders, Genera, and Species carefully analysed, so as to facilitate their Discrimination; with a synoptical Table of the Genera, according to the Linnæan Classification, and a Glossary of those Terms most commonly in Use. By WILLIAM E. STEELE, A. B., M. B., &c. &c. Dublin, McGlashan. 8vo., pp. 249.

THIS little work, the objects of which are fully described in the title-page, does Dr. Steele much credit. It is obviously the result of patient industry and considerable discretion. In the descriptions of the several species, the British Flora of Sir W. J. Hooker has been taken as the text, and the writer has manifestly noted with much care the botanical criticisms of Mr. Babington and others, which lie scattered through the pages of British periodicals. A nice pocket Flora, we may also say, was a book that was wanted. That noble work, the *Flora Hibernica*, is somewhat too large to bring out into the fields; and although it may be questioned whether a botanist does actually ever examine a plant critically during an excursion, but is not rather in the habit of bringing the plants home with him and studying them at his leisure, still, to the beginner, the practice of open air investigation is, no doubt, of great importance. It may be objected to this Hand-book that the great number of contractions and signs of various kinds employed in it render it rather puzzling to beginners, but we confess we do not see how such a quantity of matter could be compressed into so small a space without their employment. On the whole, we are very much pleased with this compilation; it is very neatly printed, on good paper, and the lithograph, illustrative of the various organs of plants, is well executed.

In the introduction Dr. Steele affords us his opinion as to the manner in which a practical Flora ought to be constructed. In point of classification, he prefers the natural system to the method of Linnæus. He says:

“The present advanced and advancing state of botanical science in these countries renders it unnecessary for me to defend the adoption of the system of natural orders, as the basis of a work like the present, in preference to that of Linnæus. The public voice has now decided this question; so that the advocate for the Linnæan system, in place of being an effective assailant, is now compelled to act on the defensive.”

Before we proceed any further with the quotation, we must express our dissent from the statement that botanical science in these countries is "advanced and advancing." We do not deny that there are some Englishmen, and Irishmen also, who deserve the title of great botanists; and we should, indeed, be wanting in gratitude if we overlooked the name of our own Harvey, who is even now shedding honour on our University by his beautiful illustrations of the British algæ. But there being a few great botanists in these countries does not warrant us to boast of the "present advanced and advancing state of botanical science." In fact, there are a great many studiers of plants, but very few students of botanical science. We doubt is there an English, Irish, or Scotchman, who deserves the title, and whose name is known out of his own coterie, with the honourable exception of Robert Browne. We have in this Number of our periodical a brief Report on the progress of botanical physiology, and we regret to say that we have been forced to confine it, almost exclusively, to the labours of foreigners, because our countrymen have done so little that is worth recording. Now, it is on vegetable anatomy and physiology that true botanical science is principally based; but Dr. Steele may mean, when speaking of the "advanced and advancing state of botanical science," that botany is becoming popular amongst the masses,—that it is a favourite study of the million. We regret that we must also dissent from this opinion. We venture to assert that botany was much more popular in Dublin forty, or even eighty years ago, than it is now. The members of the Medico-Physical and other Societies of the former period had an herb-collector (see the Preface to the present Series of this Journal), and frequent mention is made in their Transactions of rare plants brought to them for inspection. They were in the habit of going out on herbarizing excursions; and Dr. Rutty thought it, in one instance, a great grievance that a sufficient number did not attend on one of these occasions. What chance would we have, at the present day, of getting half-a-dozen members of the Royal Irish Academy to attend an herbarizing excursion? And be it remembered, this Medico-Physical Society numbered in its ranks the first physicians and surgeons of the day. We are informed by our respected friend, Mr. Mackay, of the many pleasant tours, having a botanical object, in which, some forty years ago, he accompanied Dr. Whitley Stokes, Dr. Percival, and other eminent men of that period. Ah! we beg to assure Dr. Steele that botany is not advanced or advancing in popularity. But to return to Dr. Steele's argument:

“The very simple and superficial nature of the inquiries necessary to be instituted in assigning to any plant its class and order in the system of the great Swede, is the chief, if not the only reason that can be urged to justify the continued use of that arrangement. It must be borne in mind, however, that the investigation does not end with this ; for, in order to determine the genus of which the plant is a species, in the heterogeneous assemblage thus brought together, other, and frequently most minute points of structure, must be inquired into, surrounding this phase of the investigation with considerable difficulties. In the natural system these difficulties are merely transferred to the determination of the natural order ; but this once accomplished, that of the genus is comparatively simple. So far, then, it is apparent that the difficulties in the application of either system to the determination of genera are nearly balanced. If, however, we can simplify the investigation by which we can assign a plant to its natural order, then the one plea against the condemnation of that of Linnæus is removed, and we are justified in venerating it merely as the beautiful structure of a past age, but which is altogether unsuited to the requirements of a more enlightened generation.”

Now the above is precisely identical with the argument used by Dr. Lindley in the Preface to his Synopsis ; yet for one student who has made use of the Synopsis, we venture to say that one hundred have employed Hooker's British Flora, or the edition of Withering, by Mac Gilivray. The argument, as we understand it, may be stated thus : that in making out a genus by the Linnæan method the first steps are easy, but the subsequent ones are difficult ; whilst by the natural system the first steps are difficult and the subsequent ones easy ; and that thus, on the whole, the difficulties being equal, we ought to prefer the mode by which we learn most. It is on all hands agreed, that it is quite out of the question for the student of botany to begin by committing to memory the characters of all the natural families. He must already have examined a great number of plants before he can comprehend the principles upon which they are grouped into what are called natural families. No doubt, when he is so far advanced as to be capable of realizing the essential characters of these associations, he will have acquired instruments of accelerated progress ; just as in the higher mathematics facilities are available which the novice cannot use. But, it is said, “we can simplify the investigation by which we can assign a plant to its natural order ;” and how is this to be done ? By forming an analysis of the vegetable kingdom upon some few differential characters ; by requiring the student to interrogate the plant, in what may be called a dichotomous manner, through a

great number of questions. For example: if the learner takes up the common sea catch-fly, and wishes to ascertain what family it belongs to, he has, first, to observe whether it be a flowering plant: secondly, whether it be a tree or shrub, with distinct bark, wood, and pith, or an herb; whether the leaves be branch-ribbed or straight-ribbed; whether the flowers be tertiary or sextenary, or not; whether they are arranged in a spadix or enveloped in a spatha, or not: thirdly, he will have to see whether the flowers have both stamens and pistils: fourthly, whether the ovary be inferior or superior: fifthly, whether the corolla be apopetalous or synpetalous: sixthly, he will have to determine whether the petals are or are not larger than the sepals: seventhly,—but there is no use in fatiguing our readers. It is sufficient to say that the student will require to proceed to *fifteenthly* before he can satisfy himself that the family is that of the caryophyllæ; and he must subsequently determine the genus and the species.

Now Dr. Steele knows as well as we do that natural groups are constituted by their collective, and not by their differential characters; yet in this mode of discovering a natural order, all the stress is laid on differential characters. This is wrong in principle, and is calculated to cause the student, at the very outset, to form erroneous notions of what it is that constitutes a natural group. Lamarck has followed a somewhat similar method of analysis, but he never once suggested that it had any foundation in nature; he merely used it as a help to facilitate the distinction of genera and species. We are sure that Dr. Steele has been led astray by the example of Dr. Lindley, yet we gladly acknowledge that his analysis shews a great deal of ingenuity; but we confess that we would prefer, if difficulties be equal, the employment of a method avowedly artificial, than of one intrinsically just as much so, although presented under the disguise of a natural system. We are the more earnest on this subject, because we fear that the natural system is neither taught nor understood in these countries.

Dr. Steele follows an unusual arrangement of the natural families. In explanation of his reasons for doing so, he says:

“The idea has long occupied my mind, that the principles of vegetable transformation, or morphology, might be made available in the formation of the higher divisions of flowering plants, in the same manner that the morphology of the simple cell may be used in the arrangement of the lower cryptogamiæ. Botanists are now so familiar with the doctrine, hinted at by Linnæus, but more distinctly enunciated by Goethe, of all parts of a flower being, in truth, nothing but modified leaves,—of the bracts, calycine divisions, petals, stamens, and

pistils, being leaves altered in texture and form,—that it is not necessary here to enter more fully into this matter. To effect these metamorphoses, it is apparent that some special vital forces are called into action; and we are justified in the inference that those flowers which exhibit the most extensive departures from the original type, as the result of a more intense action of these forces, ought to be regarded as possessing a higher structural nature than those wherein the primitive model may be more evidently traced. It is manifest, then, that the most simple metamorphosis the leaves undergo is in the production of flowers, all the parts of which most nearly resemble the former in being distinct from one another; and that when these separate parts appear in a new condition, by their cohering more or less intimately with each other, a more complete alteration is effected. Therefore it is, I conceive, that flowers whose parts thus cohere are to be considered as possessing a more exalted structure than those in which the several floral whorls, and the members of each, are distinct. In the construction of a system for the arrangement of flowering plants, according to these views, the following principle may be enunciated:—*That plants whose flowers exhibit their several parts in a state of separation, are to be placed in a lower position than those in which their several parts are in a state of cohesion.*”

We hope Dr. Steele will pardon us when we say that there are several assumptions in the above argument which require proof. It is assumed that flowers are metamorphosed leaves: now would we not have as good a right to say that leaves are metamorphosed flowers? Let Dr. Steele take the petal or stamen of any flower, and demonstrate that it ever was a leaf. He knows that he could not. The fact is, that two buds, originally similar, will, according to circumstances, be differently developed; the one into a branch bearing leaves, the other into a flower. A second assumption is, that this supposed metamorphose is effected by a special vital force; but why imagine this? Why appropriate a special vital force to the development of a branch, and another special vital force to the development of a flower; and, we suppose, little particular forces to each sepal, petal, stamen, and pistil. Are they not the circumstances which determine the development? Dry, sultry weather has continued for some time, and the rose-bush puts out flower-blossoms; the weather changes, heavy and continued rains set in, and the flower-buds become blighted, or, it may be, push out through their centres branches bearing little leaves. Did the rain drive away the special vital force of the flower-bud, and summon into existence the special vital force of the leaf-bud? A third assumption is, that adhesion or cohesion is a manifestation of more exalted vital force. If this be so, the leaves of

the *lonicera caprifolium* are connate, and those of the *periclymenum* distinct, because of the superior vital activity of the former. The apple-tree must possess much more life-activity (as the Germans say) than the oak, inasmuch as it is so much more frequently grafted; but we rather think that the reason is, that the gardener brings the graft and stock of the former tree into proper contact, so that the ordinary progress of growth may produce the desired adhesion. The deduction drawn from these assumed premises is certainly a curious one, namely, that the more a flower differs from a leaf (a branch bearing leaves), the higher is its structural nature, and that, therefore, as a corollary, the *compositæ* are the first among plants.

Our readers will perceive, by the space which we have devoted to this Hand-book, that we think highly of it. We, therefore, recommend Dr. Steele's manual to all those who are desirous of studying field botany. And, in the mean time, we have no doubt that we shall see the industrious author at a future day distinguishing himself by his original researches in this open field for investigation.

Practical Observations on certain Diseases of the Chest, and on the Principles of Auscultation. By PEYTON BLAKISTON, M. D., F. R. S., Physician to the Birmingham General Hospital. London, 1847. 8vo. pp. 668.

THE medical practitioners of Birmingham are well known to be a body of zealous and enlightened men, and the practical value of the works which have been from time to time produced by Hodgson, Langston Parker, Middlemore, Ryland, Ingleby, &c., will prepare the reader to expect a useful contribution to the knowledge of diseases of the chest, from one who has for many years filled the appointments of physician to the dispensary and the large hospital of that town. Nor will the work disappoint these expectations, for while we cannot recommend it to the student as an introduction to the study of auscultation, for which we do not consider it at all fitted, we think there are few practitioners who may not peruse with advantage the memoirs which it contains on thoracic aneurism, on chronic diseases of the heart, on plastic pneumonia, and on phthisis, from each of which we shall, without further preface, proceed to select an example of our author's method of treating these subjects, and of the statistical results of his extensive observation.

Passing by the fifty pages devoted to an exposition of the principles of auscultation (by far the least valuable part of the book, and one which might have well been omitted), we have a chapter on thoracic aneurism, its formation, termination, and causes. Among the last, *atheroma*, of course, is dwelt upon.

“This substance,” says the author, “is constantly found in aneurisms; and as its tendency is to destroy the elasticity of the artery it invades, and to favour its rupture, it is universally allowed to be the most constant proximate cause of aneurism.”

Gluge found atheroma to be chiefly composed of fat, and Cruveilhier discovered cholesterine crystals in it. This was confirmed by Hasse, and also by Mr. Gulliver, who was not aware, however, of the researches of his predecessors. Vogel has described a mass of atheroma as consisting of many tubular, colourless crystals of cholesterine, of the ordinary characteristic forms; rhomboidal tablets of many irregular, amorpho-granular masses, which did not dissolve in water, but were soluble in alcohol, after the evaporation of which they again thickened into amorphous, brownish clots, probably fat. Besides these elements, and some few fat globules, nothing was present.

“*Calcareous Concretions.*—Instead of softening, calcareous grains are sometimes deposited on the patches of atheroma, which, coalescing, form crusts and bony-looking scales. They are described by Valentin as organized calcareous deposits; the earthy bodies being deposited as round, granular, or irregular compact bodies, with prolongations radiating in all directions within a pellucid, more or less lamellated, and finely granular organic texture. It is hardly necessary to insist on the difference between these concretions and natural bone. They are principally composed of phosphate, with some carbonate of lime.

“Now atheromatous deposit cannot be a local affection, for it is not only found throughout the whole of the arterial system, but occasionally in the lungs, where it would seem to have replaced tubercular matter; and I have also found it on the glands of the gastro-hepatic omentum, associated with calcareous concretions. Dr. George Johnson has shewn that the arterial tunics, in a healthy state, contain some minute quantities of fat, so that the affection under consideration consists in an excessive deposit of fat in tissues which, in a state of health, are sparingly supplied with it, a process closely resembling that which has been demonstrated by Mr. Bowman in fatty liver, and by Dr. George Johnson in the uriniferous tubes of the kidney in Bright’s disease, and with both which diseases Dr. Johnson has found atheroma very frequently associated. He, there-

fore, concludes that these diseases are related to each other as joint effects of one common constitutional cause.

“It has been shewn by Becquerel and Rodier that the amount of free cholesterine in the blood varies very much, and that it is greatly increased at that period of life at which we shall presently see there is also an increase of atheromatous deposit. Upon this Vogel remarks that the augmentation of this substance in the blood is probably connected with an increased separation of it in the various parts of the body, and that a similar increase may take place in young persons in consequence of a morbid process.”

Both Andral and Lobstein think this state of the constitution is closely allied to that which exists in arthritis; there is, however, a great difference between the chemical composition of urate of soda and atheroma, and so also is there between the latter substance and tubercle; and yet there are some striking points of resemblance between the modes in which each of these substances is deposited in the tissues.

“In the present state of our knowledge, we can, I think, go no further than to infer that the deposition of atheroma is a process of abnormal nutrition, depending upon a peculiar state of the constitution, which may be denominated the atheromatous diathesis. It is very probable, however, that future investigators will discover that the same state of the constitution gives rise to other forms of disease.”

No mention is made of syphilis, which, according to Mr. Porter and others, is so peculiarly a predisposing cause of atheromatous disease. We observe that in Dr. Greene's posthumous paper on aneurism of the aorta the previous existence of syphilis was noted in *half the cases*.

Atheroma having been deposited in the coats of an artery, the formation of aneurism is specially favoured by two causes, *age* and *sex*. The author thus accounts for its frequent occurrence at a comparatively early age:

“An examination of cases recorded by different writers proves that aneurism prevails especially between the ages of 40 and 50, but it will presently be seen that the atheromatous diathesis increases with age, seldom being marked under 40. It would appear, therefore, that above 50 aneurism decreases, whilst atheroma increases. The following observations may, perhaps, help to explain how this occurs. Assuming atheroma to be the constant proximate cause of aneurism, its rarity under 40 accounts for the rarity of aneurism under that age. When, however, it is once deposited, the younger the subject the greater will be the tendency to the formation of aneurism, for this depends not so much on the amount of

atheroma, as on its tendency to soften : now the younger the subject the more active would be the circulation, the moister the exudation, and the greater the tendency to ulceration. In old age the reverse of this takes place, the circulation is retarded, the quantity of the general nutrient fluid is probably diminished, and the atheromatous patches are dry, or are soon converted into calcareous concretions. By the same law the softening of tubercular matter takes place with less and less rapidity as age advances, so that the older the patient the more chronic is the march of the disease. Again, the nerves are more excitable, and the muscular power is greater, in middle than in old age ; hence nervous palpitations are more easily excited, and the action of the heart is more energetic. At this period of life more violent exertions are usually engaged in, and falls and shocks of different kinds are of more common occurrence, than in later life."

Numerous cases of aneurism are detailed, which, however, do not present any remarkable features. The following are the somewhat meagre results of the author's observation of the diagnostic signs :

"A careful analysis of the signs observed in thirty-seven cases of thoracic aneurism leads to the following results :

"No diagnostic sign was furnished by the character of the pulse, or by the presence of pulsation above or below the clavicles.

"When a pulsation was seen and felt over a prominent spot in the chest, it indicated the presence of a sacculated or mixed aneurism.

"Purring thrill was only valuable as a sign of aneurism in conjunction with other signs.

"Systolic murmur, heard at a distance from the heart, even though it were not heard at the præcordial region, only afforded evidence of the existence of aneurism when it was combined with other signs denoting the existence of a circumscribed tumour.

"A double or diastolic murmur, confined to one spot at a distance from the præcordial region, denoted the existence of a sacculated aneurism.

"When a hollow murmur was heard, a dilated aneurism was present.

"The intensity of aneurismal murmur was in a great measure proportioned to the force of the heart's action.

"Aneurism of both kinds existed without the slightest trace of pulsation.

"Aneurisms arising within the sac of the pericardium were not indicated during lifetime by any characteristic signs."

We have only space for a short extract from his chapter on the diagnosis of chronic heart diseases :

"When we meet with persons labouring under palpitation,

dyspnœa, irregular pulse, fluttering or constriction at the præcordial region, and other symptoms indicative of derangement of the action of the heart, the first point to be determined is, whether this derangement depends on *organic* or *inorganic* causes.

“If, however, it be decided that some organic changes have taken place in the heart itself, the next point to be determined relates to the nature of such changes,—whether the contractile power of the heart, or its valvular apparatus, or both, are affected, and if the contractile power be affected, whether it is increased or diminished.”

After some remarks on the increase and decrease of the contractile power, the author examines the signs of *adhesion of the pericardium*, pointed out by Dr. Saunders, Dr. Hope, &c., and concludes that there is no sign by which it can be recognised; but no allusion is made to the valuable sign of *immobility* of the heart's impulse, thus announced by Dr. Cowan: “In a healthy person sitting erect, the apex strikes two inches below the nipple, and about one inch from the sternum. If lying on the left side, the apex is vertical with the nipple. If on the right side, it strikes in a line with the edge of the sternum. In adherent pericardium, *this mobility is lost.*”

Our author thus sums up the signs of valvular derangements:

“**AORTIC ORIFICE.**—*Obstruction*; systolic murmur traced up the course of the aorta; sometimes very prolonged.

“*Regurgitation*; diastolic murmur running up the aorta; visible arterial pulsations.

“**MITRAL ORIFICE.**—*Obstruction*; sometimes diastolic murmur at the apex of the heart, and at the lower angle of the left scapula; not up the aorta without visible arterial pulsations; pulmonary obstruction.

“*Regurgitation*; sometimes, but not often; systolic murmur heard at the apex of the heart, and at the lower angle of the left scapula; occasionally undulations between the second and third left ribs; pulmonary obstruction.

“**TRICUSPID ORIFICE.**—*Regurgitation*; seldom any murmur; venous pulsation of the neck; obstruction of the general circulation.”

Nothing whatever novel is offered on the treatment of aneurism or heart disease. We were struck with the author's ideas on the use of mercury in the latter affections. He barely alludes to it; recommending precautionary frictions of mercurial ointment over the præcordia in acute rheumatism! And again, in the following passage, which we confess we do not clearly understand:

“The same inflammatory action which in so many cases pre-

cedes hypertrophy, in many also induces valvular disease. As a prophylactory measure, therefore, *mild mercurial frictions may be occasionally used over the præcordial region,*" &c.

We certainly were aware that endocarditis induced valvular disease, but we did not imagine it could be safely met by such inefficacious practice as occasional *mild mercurial frictions* over the præcordia.

We would refer the author to Dr. Latham's work on Diseases of the Heart, vol. i. In the eighth lecture it is stated, that of 136 cases of acute rheumatism, endocarditis was present in sixty-three, and that valvular disease followed in no less than thirty-six of these. Such serious complications demand nothing less than the prompt, steady, and persevering use of mercury; and it is satisfactory to know that there is much reason to believe that even the structural changes caused by endocarditis are not wholly out of the reach of the medicine so employed. Of its valuable effects in other cases of heart disease, attended with pulmonary congestion, dropsy, &c. &c., the author makes no mention whatever.

Passing by the chapter on circumscribed pleurisy, which does not contain anything worthy of remark, we have next an abstract of the results of seventy-eight cases of chronic pleurisy occurring under the author's observation. The following are some of these:

"*Seat.*—The right side was the seat of disease in twenty cases; the left in fifty-eight.

"*Extent.*—In fifty cases one side was completely filled with fluid; and in twenty-eight, from one to two-thirds of the side.

"*Figure.*—In forty-five cases the affected side exceeded the opposite on measurement by three-quarters of an inch, and in some instances by an inch and a half on a level with the nipple, and half an inch under the arm-pit. In twenty-eight cases there was little or no difference in the two sides, and in five the affected side measured less than the other, in all of which the fluid reached up one-third of the chest, and the attack was on the decline at the time of examination.

"There was *œdema* of the side affected in twenty cases.

"The *intercostal depressions* were more or less obliterated in twenty-eight cases, in all of which the fluid extended up to the clavicle.

"*Position of the Heart.*—In all the thirty-nine cases in which the left side was full of fluid, the heart was pushed to the right of the sternum. Unless, however, the side was nearly full, the position of the heart was not affected. In only two of the cases in which the right side contained fluid, was it clearly perceived that the heart was tilted up towards the left axilla."

We cannot admit the accuracy of this observation. Our experience rather coincides with that of Dr. Stokes, who says: "This important sign occurs from the earlier periods, and exists long before any protrusion of the intercostals or diaphragm;" and, "Displacement of the heart to the right side by no means implies obliteration of the left lung; on the contrary, the upper lobe may present distinct vesicular murmur, while the heart pulsates to the right of the sternum."

"The permanent displacement," says our author, "of the heart to the right side of the chest, has been noticed by Dr. Stokes as one of the results of pleurisy, and attributed by him to the absorption of fluid effused into the right side of the thorax,—an opinion, the accuracy of which he was enabled to verify in one instance after death. As so few cases of this kind are on record, the three which follow may prove interesting, more especially as they in some degree confirm Dr. Stokes's opinion."

As we do not agree in the author's diagnosis, we shall submit two of these cases of presumed empyema for our readers' judgment. Passing by Case 86, in which the evidence of pleuritis is satisfactory, we transcribe Cases 87 and 88. A miner, aged 53, had been troubled with a dry cough for five years, and dyspnœa on exertion. Twelve months since he took cold, when his breathing became more laborious, and his cough more troublesome, and was accompanied by expectoration of froth, and by a dull aching pain under the left nipple. For the last two months he has had spasmodic cough, with scanty expectoration, and great dyspnœa. On his admission into the Birmingham General Hospital, there was a slight lateral curvature of the spine towards the left. Below the nipple the right side measured three-quarters of an inch less than the left side. The heart was seen and felt to beat to the right of the sternum, in a line with the nipple. The left side of the chest sounded clear on percussion, and the lower part particularly so. *Over the right clavicle*, and three inches below its sternal end, the sound was very dull, and a slight dulness was observed at the spot where the heart was seen to beat. *The upper third* of the right side behind sounded also dull; whistling respiration was heard at a distance; very little respiratory sound was perceived on the right side, but under the right clavicle it was tracheal, and in other parts was marked by dry rattles. Behind the left side there was a large, uneven, mucous crackling. He left the hospital in a few weeks, relieved; his heart continued to beat to the right of the sternum.

A collier, aged 39, had been subject to dyspnœa and cough, with muco-purulent expectoration, for ten years. It was at-

tended with increased dyspnœa and constriction of the chest, followed by the expectoration of dark liquid blood on taking fresh cold. He had on these occasions night sweats, and had gradually, year by year, been losing flesh. Four years ago he caught cold, and suffered much from a severe cutting pain under his right nipple, increased by deep inspiration; and shortly afterwards he noticed his heart beating on the right side of the sternum, where it has remained ever since. On his admission into the Birmingham General Hospital, the left side measured half an inch more than the right side, on a level with the nipple. His breathing was rather stridulous. The heart was both seen and felt to beat on the right of the sternum, a little below the nipple. The left side of the thorax seemed bulged out, and the right side flattened; there was a slight spinal curvature to the left; the breathing was chiefly abdominal; the whole of the right side sounded duller than the left on percussion, *more especially behind and under the clavicle.* The pulmonary sound was coarse, and was prolonged during expiration under both clavicles. It was accompanied by some crackling over the left side, and was quite masked by mucous rattles on the right side. *Incomplete pectoriloquy was heard under the right clavicle,* and strong buzzing bronchophony below the angle of the right scapula. The sounds of the heart were heard clear and distinct on the right side, but very remotely on the left side. He left the hospital relieved.

“The evidences of pleurisy on the right side in Cases 86 and 88 are strong and conclusive, and the time when the heart passed over to the right side is accurately marked. The general signs in Case 87 are more obscure, but there can be little doubt that effusion had once existed in the right pleural cavity. Indeed, the result of such effusion was seen in this, as in other cases, in a diminution of the size of the right side of the thorax.”

We should admit the existence of such an absorbed effusion, if contraction of the side and displacement of the heart could not be otherwise caused; but, believing it to be otherwise, we cannot see any evidence of such effusion, and we consider these cases to have been examples of that peculiar contraction of the pulmonary parenchyma described by Dr. Corrigan under the name of “cirrhosis of the lung.” We presume that the author is not acquainted with this memoir, which is to be regretted, inasmuch as, with his extensive opportunities of observation, he could not have failed to have met with so many examples of this disease, were his attention directed to it, as would materially strengthen Dr. Corrigan’s imperfect induction, and contribute to clear up the doubts which exist in the

minds of many of the profession regarding its nature, and the validity of his hypothetical explanation of it. We know some pathologists who can recognise in Dr. Corrigan's published cases nothing more than chronic pleuritis, with dilated bronchial tubes, a combination known to be not unfrequent. Such a limited view, however, of the origin of this morbid change is untenable, since, from the observations of Stokes, Hasse, and others, it appears that in some forms of pneumonia (the plastic), contraction occurs, arising from amalgamation of the effused lymph of hepatization with the parietes of the cells, the consequence according to Hasse being "permanent incapacity of the part for the office of respiration, gradual shrivelling of the pulmonary texture, sinking in of the wall of the thorax, and dilatation of the bronchial tubes throughout the previously hepatized lobes."

In a case of asthenic pneumonia recorded by Dr. Stokes, the contraction of the side was as great as in any case of empyema he had ever seen. We do not think the "slowness of resolution" will alone account for this, since in the most tardy instance of resolution of pneumonia we ever witnessed, the affected side, two years after the attack, measures a full inch more than the opposite. The true *rationale* is given by Hasse as above. The part performed by effused plastic lymph in these cases of cirrhosis, pleuritis, pneumonia, and phthisis, with early *flattening* of the chest (first attributed to this cause by Dr. Walshe), is a subject of much interest, and open to the investigation of pathologists.

In an analysis of the general signs of pleuritis it is stated that—

"The *decubitus* was on the affected side in forty-six cases; on the opposite in four; and indifferent in twenty-eight.

"*Pain* was not felt in twenty-eight; at the onset as a stitch in forty-eight; severe in nine; it was absent in seventy-two at the time of examination.

"*Dyspnœa*.—Even when not acknowledged by the patient, respiration was never less than thirty-two; in some cases reaching fifty-six in the minute.

"*Cough and Expectoration*.—There was cough in thirty-eight, with clear expectoration in most of them; and in nineteen it was muco-purulent."

The author does not seem aware of the value of this sign, or of the excellent observations on it of Drs. Green and M'Donnel.

"*Fever*.—Hectic, with night perspirations, in ten cases.

“*Pulse*.—Generally small; often sharp; never under 80; sometimes 160.

“*Terminations*.—With a view to ascertain whether chronic pleurisy is a frequent precursor of phthisis, care was taken during some years to trace the results of these seventy-eight cases. Ten have been lost sight of; of fifteen others it is only known that they are living; of the remaining fifty-three not one has become phthisical.”

We have next a chapter on *plastic pneumonia*, “in which lymph is deposited with little or no fluid, and which may be looked for in two varieties in an aggregated and in a disseminated form;” such a form, the analogy of inflammations, our author thinks, requires; and, “no such state having been described, it is proposed to deduce its existence from the following cases.”

We think we could point out several writers who have described this form of inflammation under different names, as chronic, fibrinous, croupy, albuminous, &c. Some of the peculiar characters observed have been:

1. Its appearance under a typhoid type (as in several of the cases in the present work). We have often seen this pale, grey, or yellow infiltration in typhoid pneumonia.

2. Such solidification has been noted to be *dry* and difficult of resolution, from the absence of the serous infiltration by which hepatization is resolved.

3. As being therefore liable to two forms of termination,—one by transformation into tubercle, the other into a mass of crude coagulated fibrine, with shrivelled pulmonary tissue”(a).

4. As being often associated with tuberculosis, in which case, according to Hasse’s observations, it commonly occupies the lower lobes, meeting the march downwards of the tubercle which occupies the upper portion of the lungs.

5. As occasionally existing in the disseminated form, distinct air vesicles being filled with the grey matter (as in the author’s ninety-third case), simulating acute phthisis, and probably always present, and constituting the predominant lesion in that disease. It might be added, that this is probably the case in all cases of cured phthisis, especially those cured by mercury. (Some of the author’s dissections of arrested phthisis support this view).

A large portion of the chapter on phthisis is devoted to the consideration of the mutual relation, order of sequence, &c.,

(a) *Researches on Pneumonia and Tubercular Infiltration*, by Dr. F. Zehetmayer; translated by Dr. Battersby. Dublin Med. Journal, vol. xxvii.

of tubercle, and this grey inflammatory induration, when occurring in the same subject. It is several years since Dr. Graves said: "I do not use the ordinary nomenclature of writers on consumption: I do not recognise the terms 'tubercular inflammation,' as connected with cases of this description; indeed I am inclined to think that the whole theory of inflammation being excited in the lung, by the presence of tubercles, is founded on erroneous views."^(a) Our author would seem to be of the same opinion.

"A maid servant, aged 35, of intemperate habits, stated that for some months she had suffered from cough and dyspnœa. The greater part of the left side sounded dull on percussion; an occasional click was heard under the left clavicle, but very little respiratory murmur.

"*On inspection*, both lungs were congested, but the upper half of the left lung was in a state of grey and slate-coloured induration, and in the midst of it were several small tubercular cavities, and some few yellow tubercles. No trace of tubercle was found in any other part of the body."

From this and similar cases the author infers that,

"We cannot suppose that the few tubercles which existed could have given rise to such an amount of irritation as to have produced the great mass of grey induration. Besides, similar matter was found in the other lung without a trace of tubercle near it.

"It has never been denied that, in the form of granulation, the grey matter precedes the formation of yellow tubercle; and, I think, it will be allowed to follow, from the above cases, that the same takes place when the larger masses of it are found in the lung surrounding a few tubercles. It is, indeed, the same process as that which goes on when tubercles are found in false membranous bands, which must have existed before the tubercles could have been deposited in them or formed out of them.

"Considerations, therefore, based on the general appearance of the grey matter, its mode of development in certain cases, and its minute structure, lead me to conclude that, in all its forms, it is an imperfectly organized substance, which, in the absence of the tubercular diathesis, may remain stationary, or may rise slightly in the scale of organization, but which, under opposite circumstances, may descend in the scale, and be converted into, or be displaced by, tubercular matter. In this sense it may in some cases be the first stage of tubercle, but not a stage, as supposed by Laennec and Louis, through which tubercles must necessarily pass before acquiring their own peculiar character, nor must it of necessity be followed by tubercle.

(a) Clinical Medicine, p. 603.

“It is impossible to determine by what process yellow tubercle is developed in the midst of the grey matter; whether it is deposited in it as a nidus, in the same manner as earthy salts are deposited in atherome, or whether the grey matter is transformed into it as lymph is converted into pus. Both suppositions may be reconciled with our present knowledge.

“It follows, from what has been shewn as to the mode of development of tubercular matter in the lungs, that it must be preceded by local congestion. Vogel considers it to result from the same causes as fibrinous dropsy generally, and to be preceded by local hyperæmia of the participating capillaries. Andral states that the pre-existence of congestion may be admitted, but cannot be demonstrated. Capillary congestion may be distinctly perceived, preceding the deposition of typhic and scrofulous matter in the mesenteric glands. It is more difficult to observe this in the lungs; but, in acute phthisis, it may be occasionally seen. In chronic phthisis, the results of such congestion alone meet the eye; but it will hardly be denied that the deposition of lymph, although of a low character, proves the existence of some amount of congestion. Besides this, physical signs of congestion are often observed at the summit of the lungs, which, in some cases, totally disappear, and are in others succeeded by tubercular cavities. The progress of such congestion may be traced in the cases above detailed.

“Whilst the meaning attached to the word *inflammation* is so indefinite as it is at present, it would be useless to discuss whether the action which accompanies the deposition of tubercle is of an inflammatory nature or not. Dr. Hughes Bennett very aptly remarks: ‘If by the term inflammation be understood pain, heat, redness, and swelling, or the presence of lymph or pus, then tubercle is not inflammatory. If, on the other hand, we consider that the essential phenomenon of inflammation is an increased exudation of the blood plasma, then tubercle must be regarded as an inflammatory product.’(a) The importance attached to this question, which has engaged the attention of so many eminent men, may be supposed to arise from its bearings upon treatment. It will be shewn, however, that, in this point of view, it is of very little importance, the grand question being, whether tubercles arise from a sthenic or asthenic state of the system, inasmuch as inflammations, occurring in each of these states, demand an almost opposite line of treatment, the one from the other.

“It may be inferred, then:

“1. That the deposition of tubercular matter in the lungs depends on a peculiar asthenic state of the constitution, the *tubercular diathesis*.

“2. That it is preceded by *local hyperæmia*.”

We consider these observations, on a question which has been

(a) For a similar view of the inflammatory origin of tubercle see Dr. Leeper's Report, in the seventh Number of this Journal.

long debated, though but little elucidated by medical writers, highly interesting and important. Our author's views regarding the relations of tubercle and inflammation, appear to approach closely to those put forward by Dr. Evans in his Lectures on Consumption; and, as might be expected, there is a similar correspondence in the mode of treatment recommended by each; the principal object being the removal of the phthisical predisposition by improving the constitution by employing nutritious diet and tonic regimen, and by such a selection of the means required for allaying irritation, or removing inflammation of the lung, as shall not interfere with this primary object. "In short, the principle of treatment," says our author, "suggested by the nature and known causes of phthisis, is *the union of tonic and sedative remedies.*" He states that the number of cases of phthisis treated by him between the close of 1835 and the commencement of 1846, amounted to nearly 4000!! At the latter period thirty-one survived, in whom the most unequivocal signs of a tubercular cavity had been observed. Of ten of these it is only known that they are living. The other twenty-one have been seen by him within the last two years.

"Of these, eight still labour under the disease in a chronic form; four are tolerably well, but expectorate muco-purulent fluid, and have signs of a cavity remaining. The other nine enjoy an average amount of health, have slight cough, with expectoration of pearly grey mucus, and have lost all traces of a cavity. There is in most of them, however, coarse and feeble pulmonary sound in those situations where a cavity had existed.

"Of the persons who survived in 1846, three-fourths were between the ages of 35 and 45, and only two were under 20, a fact tending to confirm the opinion that the chances of recovery increase with age. It has been long known that the disease runs a more chronic course in proportion as the patients advance in years, and it is therefore probable that recovery takes place more frequently, at this period of life, in consequence of time being allowed for the removal of the constitutional derangements upon which this disease so peculiarly depends."

The directions for treatment,—preventive and curative,—are uniformly judicious. We have only space for the following;

"*The Acute Form of Invasion* demands prompt and energetic measures. We cannot trust to the constitutional treatment alone, for unless the progress of tuberculization, and of plastic vesicular pneumonia, be quickly arrested, the patient will die of suffocation. When the dyspnoea is urgent, and the fever is running high, we can

hardly refrain from the use of the lancet; but even here I have seldom employed it, because experience has taught me that the most acute inflammation of the thoracic viscera may be often successfully treated without it.

“If we abstain from blood-letting, then, we must have recourse to mercurialization; and for this practice we have strong grounds, since a glance at the progress of acute phthisis shews that the grey granulations materially hasten the fatal termination, by clogging up the lungs before tuberculization has taken place to any great extent. Now mercury is our sheet-anchor in promoting the absorption of plastic lymph. In the following case this treatment was adopted.”

In this case, which presented all the characters of acute phthisis, rapid mercurialization by inunction was followed by recovery. As the author adduces but one such example of the success of the practice from his own experience, we think he should, in justice to his readers, have referred them to the published experience of others, who, like Drs. Graves, Stokes, and Munk, have recorded their more numerous trials.

Of acute phthisis, the author has met with twenty examples. He states that in only three of these was he able to detect the progressive supervention of dulness on percussion, upon which Dr. Stokes, in a great measure, founds the diagnosis of this disease:

“It may be argued,” says he, “that the dulness observed in the three cases above mentioned, not arising from the ordinary causes, must have depended on this unusual cause, the rapid increase of the solid matter in the lungs in the shape of granulations and tubercles; and such, doubtless, was the case. If, therefore, this sign were of frequent occurrence, it would be of great value as diagnostic of the disease in question. As such it has been brought forward by Dr. Stokes, and, in his experience, this sign is seldom absent, and is not difficult of discovery. It was only perceived, however, and that most faintly, in three of the twenty cases of acute phthisis and grey granulation, nor does it appear to have been observed more frequently by Louis. This is easily accounted for. Supposing the sonoriety of the chest to be considerably diminished, it may be very difficult of appreciation. We have, in truth, here no parts of the chest to compare with each other, for not only are both sides similarly affected, but also every part of each side. The value of differential examination, therefore, so strongly insisted upon by Dr. Stokes, is here altogether lost to us. The only comparison we can make is that of time, which requires that we should carry in our memory the exact amount of sound emitted from the chest on percussion at a previous examination. The difference may sometimes be appreciated, but I believe it will very seldom be discovered, even by the most practised ear. This sign may possibly possess some value in

the hands of so skilful an auscultator as Dr. Stokes is well known to be, but as a guide to the bulk of the profession it must be comparatively useless."

Admitting the justice of the tribute here paid to Dr. Stokes's skill as an auscultator, we must yet repudiate the notion that any very great refinement in skill is *necessary* for this diagnosis. Dulness may not, and we know is not always present (why,—it might not be difficult to explain); but we may remark that the author makes a very imperfect use of percussion as a means of diagnosis, when he does not recognise its phenomena as matter of *tact*, but only as matter of *sound*. In these and other cases, at the same time that little or no difference of sound may be heard by the bystander, the delicate touch of the practised auscultator will appreciate a *resistance* to the finger resting on the inelastic parietes, which, a few days or hours before, he felt freely vibrate under the stroke. No mention being made, throughout the volume, of this important *element* in percussion, we beg to refer the author a second time to Dr. Cowan's excellent little work on "Physical Diagnosis," in which it receives the notice it deserves(*a*).

The importance of the subjects treated of must plead our excuse for so lengthened an analysis of this work. We have derived much pleasure and instruction from its perusal, and we warmly recommend it to the notice of the profession.

Contributions to the Pathology and Practice of Surgery. By JAMES SYME, F.R.S.E., &c. Edinburgh, Sutherland and Knox. 1848. 8vo. pp. 336.

Observations on some of the Parts of Surgical Practice. By JOHN P. VINCENT, late Senior Surgeon to St. Bartholomew's Hospital. London, Longman. 1847. 8vo. pp. 364.

A System of Practical Surgery, &c. By JOHN LIZARS. Second edition. Edinburgh, W. H. Lizars. 1847. 8vo. pp. 503.

MR. SYME, in his Preface, informs us, that the reasons which have induced him to republish his various essays, are: 1. Because, being an hospital surgeon, "he felt it peculiarly incumbent upon him to write for the information of his professional

(*a*) Dr. Walshe also, at p. 168 of his *Diagnosis of Diseases of the Chest*, treats of it fully, and remarks that to those whose sense of touch is more delicate than that of hearing, this source of diagnosis is of especial value.

brethren." 2. Because "the papers contributed with this view, during the last twenty years, have appeared in various periodical publications, in the volumes of which they are now nearly, if not quite, beyond the reach of most readers;" and lastly, because he has "been frequently requested to publish them in a separate form." These inducements, it appears, were all-powerful with the Author, but we imagine that many of his professional brethren would have thought as highly of his judgment had he permitted the thirty-one articles which compose the book to remain in "the obscurity in which," to use his own words in reference to the labours of others, "they had very properly been allowed to slumber," and to which they "will probably soon return."

The work consists, as we have said, of thirty-one articles, and embraces a variety of subjects, from the manufacture of Mackintosh cloaks to the excision of the upper jaw.

The first article "On the Solution of Caoutchouc," is interesting as an exemplification of the dependence of important events upon trivial causes. The author informs us, that having from an early age taken much interest in chemical pursuits, he became impressed with the importance of obtaining a cheap solvent of caoutchouc, and that at length, after many trials, he succeeded in converting a silk cloak into a waterproof pitcher, by turning up its skirt!

This was an "object of wonder to all who saw it," and his friends recommended him to take out a patent for the discovery.

The Author addressed, however, a letter upon the subject, to Dr. Thompson, for insertion in the "Annals of Philosophy," in 1818; and he now complains that this letter, though transmitted in the beginning of March, did not appear in that Journal, which was published monthly, until August; and that not long after Mr. Mackintosh took out the patent, and obtained the credit and profit of the discovery, leaving to Mr. Syme nothing but "the confidence which results from successfully struggling with a difficulty."

Had Dr. Thompson published this important letter at once, instead of, with inexcusable delay, holding it back from March till August, in all probability the destiny of our Author would have been changed; we never would have heard of "a Mackintosh,"—for "a Syme" would "have afforded complete protection from the heaviest rain;" and a silken pitcher would have graced the hand of the Highland maiden, as she tripped along the mountain glen for water from the crystal stream.

It is not to be expected that we should give an analysis, however brief, of the remaining thirty articles contained in the volume before us, the great majority of which are to be found in the Edinburgh medical periodicals, where, however, the Author states they are quite beyond the reach of most readers. The statement is by no means complimentary to the editors of the Journals.

In the second article, which treats of "*Gangrena Senilis*," a plan of treatment is recommended, which has, at all events, the charm of novelty, viz., withholding from the patient *nutritive food*. The Author is "aware that the proposal of this starving plan may appear rather startling," but a trial is requested. "The advantage almost immediately derived from abandoning the use of nutritive food is so obvious, that this plan of treatment has required only a commencement to insure its continuance."

The third article treats of "*Excision of the lower Jaw*," and contains one important practical precept, for which, however, the profession is indebted to Mr. Cusack. We allude to the advantage of opening the joint from before, in cases where it is necessary to disarticulate the condyle ; and we are glad to find that the Author has given Mr. Cusack the credit of the suggestion :

"I think Mr. Cusack is entitled to much praise for insisting on the propriety of opening the articulation from before, since a wound of the internal maxillary, or even the temporal, is otherwise almost inevitable. Thus Mr. Liston, in the case detailed in the last Number of this Journal, opened the joint from behind, and found it necessary to tie the common trunk of the temporal and internal maxillary,—in short, the external carotid."

In the next article the Author treats of the power of the periosteum, in cases of necrosis, to form new osseous matter independently of any assistance from the bone itself. We thought that this was a settled question, even at the time that this article was first published (1837). The Author, however, states that "different sides of the question are maintained by teachers and writers in this as well as in other schools of medicine." We suppose he alludes to Dr. Knox, who refers the production of the new bone to the vessels of the remaining portion of the living bone(*a*). The majority, however, of pathologists who support the opposite view of the subject is so great, that Mr. Syme's observations and experiments appear to us

(*a*) Edinb. Med. Surg. Jour. vol. xviii.

to have been quite unnecessary, more especially as they contain nothing new. We might refer to the names of Havers, Duhamel, Troja, Swencke, Fougereux, Marigues, Bertin, Blumenbach, Desault, Koehler, Stanley, Macartney, and numerous others in proof of this assertion. We have ourselves long acknowledged and been familiar with the power of the periosteum of itself to form the new bone, and have seen in the museum of the Richmond Hospital of this city numerous preparations decisive of the question. We think, therefore, that Mr. Syme was guilty of needless cruelty to animals, when he thus cut out the bones of three dogs.

The fifth article treats of "Ulcers of the Leg;" and we give the Author full credit for the mode of treatment which he proposed in 1829 for the relief of indolent or callous ulcers. "This was to apply a large blister over the sore and neighbouring swelled part of the limb." We have repeatedly witnessed the valuable and permanent advantages derived from this method of treating these troublesome and obstinate ulcers.

We would wish to have alluded to the statement of the Author, that the operation practised by Velpeau for the cure of varicose veins is more sure, safe, and effectual, than that recommended by Sir Benjamin Brodie, and to have recorded the fatal results which have in many instances followed the operation of Velpeau in his own wards at La Charité; but our space will not permit us to do so. We are glad, however, to find that Mr. Syme prefers trusting to palliative treatment in cases of "Varicose Ulcer," rather than having recourse to operations upon the veins, all of which are fraught with peril.

We can notice but briefly the criticisms upon the mode of treatment recommended by Sir Benjamin Brodie for abscess in the tibia. "There is reason to fear," says Mr. Syme, "that operations still more severe (that is, than the cautery, the rasp, and the chisel), and, if possible, still less warranted, have been performed on account of chronic swellings affecting the periosteum and bone, through the proposal of Sir Benjamin Brodie, to trepan the tibia for the discharge of matter pent up in its cancellated texture." Mr. Syme considers the operation unnecessary, painful, and dangerous, and that it is most difficult to distinguish the disease from chronic periostitis; yet he admits that he has never seen this disease, though looking for it many years, and he regards "its absence from the field of observation submitted to him, as a proof that it must be a rare event in the practice of surgery." We may mention here that Dr. Hutton has publicly performed the operation three times within the last year; and that in two of the cases complete re-

covery followed the evacuation of the abscess. Mr. Syme regards the operation as unjustifiable, because chronic abscess in the tibia is liable to be mistaken for chronic periostitis, "which admits of remedy by the use of gentle means." We imagine that the fault here lies, not with the distinguished author who has described the disease clearly, and proved the efficacy of the plan of treatment which he has proposed, but with the surgeon who is unable to establish the differential diagnosis. We are ourselves convinced of the value of the method of treatment recommended by Sir Benjamin Brodie, "*though it may not, perhaps, be the best adapted for the lowest capacity of surgical practice.*"

We now come to the fourteenth article, which treats of popliteal aneurism, and in which the Author notices "the attempt which has been lately made to introduce compression of the femoral artery, instead of its ligature, for the treatment of aneurism." The leading features of this article are, its being destitute of argument, and replete with erroneous assertions and disgusting egotism. The Author thus introduces the subject: "The laborious, distressing, and tedious procedure, which has lately been brought again into notice by a *surgeon of Dublin*, will probably soon return to the obscurity in which it had very properly been allowed to slumber." Our readers, perhaps, do not require to be informed that the surgeon of Dublin, who re-introduced this practice in modern times, is Dr. Hutton, an accomplished operator, and one of those enlightened practitioners who do not resist improvement because it is new, and whose numerous operations upon the carotid, subclavian, and femoral arteries, prove that he has not had recourse to the method of compression from an inability to "*practise a higher exercise of his art.*" Mr. Syme asserts that those who have treated popliteal aneurism by compression (among whom he, of course, includes the late Mr. Todd and Mr. Liston, together with Messrs. Cusack, Kirby, O'Ferrall, Porter, and others) have done so because it was the mode "*best adapted for the lowest capacity of surgical practice ;*" and concludes the article by observing: "*Let every man act according to his ability ; but let no one who feels it necessary to choose inferior means throw blame upon those who feel warranted to practise a higher exercise of their art.*" We will not insult these gentlemen by entering into any comparison of their merits and reputation as surgeons with those of Mr. Syme, who has assumed to himself a superiority which neither the profession nor the public have awarded him, and who seems to think that the greatest merit of the surgeon consists in the unsparing use of the knife.

“The highest triumph of the scientific surgeon of the present day,” says the editor of the *Lancet*, “is the zeal with which he seeks to dispense with the use of the knife; and *second to this* he makes the power of being able to use it successfully when required. Never, in these respects, did operative surgery stand higher than it does now, whether we regard the substitutes that are made to take the place of cutting operations, or the singular success with which operations are performed. It is, then, strange to see, in this onward progress, an individual standing apart, seeking to be conspicuous by his isolation,—to be original by his singularity. The pillar of salt to which we refer is Mr. Syme, a surgeon who would be surprised were we to withhold from him the epithet *distinguished*.”

The following passage affords an average specimen of the clearness of the Author's style, and of the facility which he enjoys of expressing his ideas, so as to render them perfectly intelligible, even to the “lowest capacity.” At page 188, after having detailed the case of Walter Brown, the author makes the following startling statement: “*In the case now related, I tied the femoral artery for the sixteenth time, without experiencing any bad effects from the operation.*” Here, certainly, we freely admit that most operators have been surpassed, for we are perfectly sure that no other person has ever tied the femoral artery *sixteen* times in the same case. With respect to the latter part of the statement, we have no doubt of its correctness, for we can easily suppose that Mr. Syme never experienced any bad effects from an operation which was never performed upon him.

Of the truth of the proverb, that pride goes before a fall, this surgeon of the highest capacity, this successful operator for aneurism, has lately afforded a sad confirmation. In the *Edinburgh Monthly Journal of Medical Science* for December, 1847, will be found the particulars of a case of tumour of the neck, mistaken for aneurism of the carotid artery, and for the cure of which that vessel was tied by Mr. Syme. The patient died of hæmorrhage upon the twelfth day after the operation. The case was one of hydrocele of the neck, a disease with which Mr. Syme does not seem to be acquainted: for information upon the subject we would refer him to the memoir of Professor Maunoir, of Geneva, and also to that of Dr. O'Beirne, of Dublin, published in the sixth volume of the *Dublin Medical Journal*. Let it not be supposed that we are desirous to attach blame to Mr. Syme for the error which was committed in this instance, for we have more than once seen a false diagnosis of this disease made even by surgeons of very great experience. We cheerfully give the Author the full share of credit to which he

is undoubtedly entitled for his candour in publishing the case, but we trust that it may prove a useful lesson to him, and may have the effect of lowering that spirit of egotism which characterizes most of his writings.

The twenty-second article treats of the "Removal of cartilaginous Bodies in Joints,"—*from* joints we suppose the Author means. This important subject is disposed of in three pages, which contain one case which was published (1841) in support of the efficacy and safety of the mode of treatment recommended by the author, before the termination of the case or the recovery of the patient. The operation proposed is "puncturing the skin merely, and opening the synovial membrane freely, so as to let the cartilage escape, and then pushing it into the cellular substance, where it may become adherent, suffer absorption, or occasion an abscess under the skin."

The patient (aged 37) had a moveable body in the knee-joint. The operation was performed on the 1st of February, 1841; on the 3rd he had a rigor; on the 5th red lines extended from the knee to the groin, and the inguinal glands were enlarged; on the 8th a large abscess, which had formed over the cartilage, was opened; on the 11th, as the discharge continued copious, the cartilage was extracted by means of a sharp hook. The account of the case terminates thus: "The patient *seems* in a fair way of recovery." It is obvious that this patient (if he did ultimately recover) *escaped*. But we are not furnished with any further record of the case, which the Author informs us was republished chiefly on account of Mr. Liston's case, which appeared in our Journal for February last.

It is not worth while stopping to inquire whether this operation was first proposed by the Author, or by M. Goyrand, of Aix, or modified by Mr. Liston; for we look upon *all* operations which have for their object the removal of foreign bodies from joints in pretty much the same light as upon operations for the cure of varicose veins; and are of opinion that they are not only liable to dangers which peril the limb or life of the patient, but are often performed in ignorance of the true pathology of the disease, and sometimes undertaken by those who are operators and nothing more.

The twenty-third article (and it is the last we shall notice) gives an account of a case of "Spontaneous varicose Aneurism," formed between the abdominal aorta and the vena cava. This case was published in 1831, and is stated by the Author to be "the first instance to be found on record of a varicose aneurism being formed spontaneously." It is always imprudent upon the part of an Author to state that any given case is the first of the kind that has been recorded; for should the

assertion prove to be incorrect, he either lays himself open to the charge of wilfully concealing the truth, or he renders it evident that he is unacquainted with the history and literature of the subject upon which he has written, as Mr. Syme obviously is in the present instance, for we would be very sorry, indeed, to impute to him a *suppressio veri*.

We will not quote the case reported by M. Sue(a), and presented to the Faculty of Medicine of Paris, by MM. Payen and Zink, as one of aortic aneurism which had burst into the pulmonary artery, for doubts have been thrown upon it by subsequent writers; but we would refer Mr. Syme to Dr. Well's case of spontaneous varicose aneurism of the ascending aorta and pulmonary artery, recorded in 1812, in the third volume of the Transactions of the Society for the Improvement of Medical and Chirurgical Knowledge,—p. 85.

We cannot terminate this notice more appropriately than by quoting the following remark from Mr. Vincent's recently published "Observations:"

"The great importance which is attached to operative surgery does not, in my mind, confer any compliment to the scientific character of surgery. All men are, perhaps, desirous of possessing the ability of accomplishing some purpose that may draw to them admiration. *Surgeons, whose qualities of mind hardly rise to that level in which intellect can direct them to real scientific studies, fix upon the display of operative surgery as a department in which they think to shine.* In estimating the success of operations, we find that a large proportion are unsuccessful, although performed upon principles that are admissible; but, what is very startling, a vast number are continually performed, which would be inadmissible if science had enlightened surgeons, and enabled them to form correct judgments. Surgery, as a science, would decide many questions in the way of avoiding operations. *The surgeon, too eager for performing operations, is not likely to impart scientific principles to his art.*"

We understand that Mr. Syme has left the northern for the southern metropolis. We trust that he will not bring with him all his qualities as well as his qualifications. We would, in the most friendly spirit, advise him to leave his egotism behind him, and endeavour to cultivate, under the influence of a more genial climate, that most becoming virtue, modesty. We fear, however, that there is truth in the saying of the heathen poet:

"Cœlum, non animum mutant," &c.

In the republication of his paper upon Lithotomy he does not appear to have understood the hint we gave him for his plagiarism of Daunt's prostotome.

(a) *Bulletin de la Fac. de Méd. de Paris*, vol. ii. 1809, No. 8, p. 128.

To turn from the compilation of Mr. Syme to the work of Mr. Vincent is indeed a pleasure and a great relief. Every page of this learned treatise bears the impress of the scientific surgeon and accomplished scholar. The introductory chapter, upon the claims of surgery to be considered as a science, evidences an intellect of a superior order, and a highly cultivated and reflecting mind.

The work is not intended as a systematic treatise upon surgery, but is rather an effort to reduce to the principles of a science the treatment of various surgical diseases and accidents, for observing which the position of the Author, as surgeon to St. Bartholomew's Hospital for so many years, afforded him ample opportunity. It is not the ephemeral production of the young aspirant who writes before he practises; on the contrary, it is the matured composition of the experienced surgeon and the well-informed man, who has practised long and extensively, both in public and private, before he has ventured to lay before the profession the results of his observations.

At the conclusion of the introductory chapter the Author remarks:

“The following observations have no pretensions for having a systematic character, being merely the cursory notice of views formed in a long practice. The allusions to the cases that are noticed are not intended to give a full description of them, but to bring the condition of disease in such relations with each other that principles of a scientific character may be established.”

We shall make but a few extracts from the work, for the entire treatise should be carefully read both by the student and the practitioner.

After a learned dissertation upon the association of muscles in their actions, the Author observes:

“I must now impress upon the reader that what has been explained as to muscular action is very much with a view to guide the surgeon in adopting the best positions of the limbs or of the entire body, in injuries and other states where it is necessary to guard against the interference of muscles in the course that may be proposed for the line of treatment in any one case. Thus, as all muscles are, for the most part, exercised in the forward movements of the body, and as very few people have much use of the muscles that act in a sideway motion, so when any one muscle is used in this forward motion, there are, by reason of the association of actions, many others called into action, to the injury, probably, of the case. Whereas, when the patient is placed on his side, owing to the disuse of the muscles calculated for this kind of movement, the whole system of muscular action is more likely to be in repose, and has less chance of being excited by the laws of association.

“ There is yet another law of muscular action that is to be constantly attended to in practical surgery. It is that the relaxation of muscles is to be effected by attending to their positions when they are required to throw out their strongest exertions ; and not, as usually is supposed, by approximating their attachments. It is a fact we might almost expect as the result of the powerful influence of association under which they act, and which, whilst this combination exists, regulates the exercise of their forces. Thus the powerful gastrocnemius muscle exerts its greatest strength when in progression it is acting to advance the body, by throwing its weight upon the toes or metatarsal part of the foot. To do this the foot is extended, which is the same thing as approximating the attachments of the muscle. Now that case which is called dislocation of the foot backwards, and in which the tibia is presenting in front of the astragalus, offers an exemplification of this position. Of course the gastrocnemius has its lever of action increased in power as the foot lies extended, by the heel projecting so much behind ; which advantage, joined to that of its habitual exertion when in this direction, forms very great opposition to the foot being brought to a flexed position ; but yet this is not difficult, and the surgeon will sensibly feel the cessation of its action, the moment it is brought to a right angle with the axis of the tibia. This is owing to its being then in a state of least action, in the usual exercise of its powers. Another exemplification is that of the fracture of the humerus just below the attachment of the deltoid muscle.”

Having given a short outline of some propositions which may be regarded as preliminaries to practical surgery, the Author then proceeds to offer his views on the treatment of most of the accidents and diseases which come under the observation of the surgeon. His remarks upon the reduction of dislocations, and upon the position of the limb, and the employment of bandages in fractures, though somewhat novel, are highly interesting and important, and we recommend them to the special consideration of the reader. The only fault we are justified in finding with Mr. Vincent's work is for the rude, unartistic, lithographic plate which forms its frontispiece.

When treating of the varicose ulcer, the Author very properly reprobates all operations upon the veins, upon the ground of their inutility :

“ I have always been at a loss to understand the reasoning which has led to the adoption of the practice of obliterating a vein in a varicose limb. Varix is not a mere disease of a part of a vein, which the tying of the tube, or the removal of the part, can get rid of. It is the derangement of a system of tubes designed for conveying the blood to the centre of the circulation ; and one condition for properly carrying this on is, that the space in which the fluid is to move should be duly capacious. The breaking up of one channel must

throw more fluid into those that are left open; and as the relief of all tubes under disease is just in proportion to the undisturbed course which the contents of the tube are allowed to take, so I apprehend this practice is really calculated to keep up the varicose state of the limb. I have seen cases where varicose veins of the leg have been tied or divided, and where portions have been removed; but as soon as the patient got about afterwards, I have observed that the leg has been embellished with fully as many diseased vessels as before these several operations."

These observations fully agree with our own experience. The author expresses himself in favour of friction for the relief of varicose veins; and recommends the daily use of the flesh-brush, as being more efficacious than bandages or any other contrivance, in strengthening and restoring these vessels.

There are many other points of great practical interest in the work, but our space will not permit us to allude to them; we shall therefore conclude by recommending Mr. Vincent's "Observations on Surgical Practice" to the careful perusal both of the student and the practitioner.

The work of Mr. Lizars is an attempt to compress into one volume of about 500 pages, a "System of Practical Surgery," including all the recent discoveries and operations. We have never known nor expected such an effort to be attended with success, for the descriptions of diseases and accidents must necessarily be so extremely concise as to be comparatively useless as a system to the practitioner, and of but little advantage to the student. The work before us is a second edition, but upon comparing it with the first we cannot find that anything of importance has been added; and that it has been executed with carelessness is evident from the circumstance of the Author still terming the Surgeon-General of Ireland, "Dr. Crampton,"—p. 89. It is true we live here in a remote and obscure corner of the civilized world; but still the intelligence that Her Majesty had, several years ago, been pleased to confer upon our distinguished countryman a mark of her royal favour, by creating him a Baronet, might have reached the ear of a professional brother in the metropolis of the North.

Neither does the Author appear to us to have bestowed too much attention upon the style of his writing; for instance, he informs us, at page 181, that "*a bee-hive attacking an unfortunate individual may prove fatal.*"

And again at page 189:

"Neuromatous tumours are formed on the extremities of the divided nerves, where not sufficiently covered by the soft tissues; but all nerves thus cut produce elegant ganglionic swellings, *free*

from pain, from which nervous filaments proceed to the contiguous tissues; these tumours, varying in size from a common bean to a walnut, *are remarkably sensitive and acutely painful.*"

But these inaccuracies are trifling compared with the positive and serious errors which are to be found scattered through the volume before us, and which it is our unpleasant duty to expose.

At page 128, the Author states that in fractures of the neck of the femur, "if neglected, *the toes become ultimately inverted, from the power of the adductor, and relaxation of the extensor muscles.*" We deny the truth both of the assertion and the explanation: the adductor muscles are *evertors* of the limb.

At page 154 it is stated that, in luxation of both bones backwards at the elbow, "*the fore-arm is extended.*"

At page 157, the toes are said to rest "*on the great toe of the sound limb,*" in cases of luxation of the head of the femur, and upon the dorsum of the ilium; and "*on the tarsus of the sound foot,*" in those where the head of the bone is forced into the sciatic notch. The reverse is the truth.

At page 148, *the external semilunar cartilage* is said to be the one most frequently displaced. Every student that has ever heard anything of the matter, knows that in the "internal derangement of the knee-joint" described by Mr. Hey, it is the *internal* cartilage that is displaced.

At page 219, the Author states, that "Sir Astley Cooper advises the operation of trephining in all cases of compound fracture of the cranium, because inflammation is very liable to supervene." The following are Sir Astley's words: "The rule, therefore, which I always follow, is this: when I am called to a fracture with depression, which is exposed to view, I generally use an elevator, and *very rarely the trephine.* If, however, one bone is wedged within the other, I apply the trephine for raising the depressed portion of bone."(a)

At page 221, after having described briefly the symptoms of concussion, the Author states: "We ought to bleed the patient immediately after receiving the injury;" and among the advocates for this practice he mentions Sir A. Cooper. Again we will quote Sir Astley's words: "You are to use bleeding as a means of preventing inflammation; *but you are not to resort to it as a matter of course, the moment you are called to a patient under concussion.* A man falls from his horse, and the instant he is picked up from the ground, some surgeons think it neces-

(a) Lectures on Surgery, p. 133. Ed. 1830.

sary to take the lancet from their pocket. *This conduct is quite irrational.*"(a)

At page 180, we are informed that in traumatic tetanus the patient complains of increasing pain in the wound, which becomes inflamed; that the pain extends to the neighbouring parts, is increased on pressure, and darts along the nerves; that the muscles of the abdomen are affected *after* those of the arms; and that the peculiar expression of the countenance is a symptom *soon followed by death*.

At page 130 the Author states that fracture of the lower extremity of the radius is "to be treated as the preceding:" that is, fracture of the radius and ulna in the middle of the fore-arm.

We might have alluded to other errors which the Author has committed, but the preceding extracts furnish sufficient evidence of the correctness of our assertion.

One or two examples of the conciseness of the author's descriptions, and we are done:

"Luxation of inferior maxillary bone. One or both condyles may be displaced forwards, and *the disfiguration of the countenance produced shews the nature of the injury.*"—p. 161.

At page 180 the peculiar expression of the countenance in tetanus is thus described: "The face presents a horrid grin." What a clear and distinct idea of the condition of the features in luxation of the lower jaw and in tetanus is here conveyed to the mind of the student who has never seen either the disease or the accident! We know of but one parallel to it: when the immortal Pickwick suddenly disappeared through the ice, Mr. Tupman, by way of conveying to any person who might be within hearing the clearest possible notion of the catastrophe, ran off across the country screaming, "Fire! Fire!!"

There is, however, one redeeming quality in the work; it is amply furnished with finely executed engravings, illustrative of almost all the operations that the surgeon is called upon to perform, and we cannot help thinking that the Author would have acted much more wisely had he brought out the present edition in the form of a treatise upon operative surgery.

(a) *Loc. cit.* p. 121.

PART III.

REPORTS, RETROSPECTS, AND SCIENTIFIC INTELLIGENCE.

R E P O R T

ON THE PRESENT STATE OF VEGETABLE PHYSIOLOGY.

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IN preparing a Report on the present State of Vegetable Physiology for a medical periodical, it is obviously desirable to keep in view the kind of information which may be most useful to its readers. Fortunately, the direction which has been given to physiological research within the last few years has rendered this task comparatively easy, by bringing the investigation of vegetable and animal functions into close proximity. Indeed, at all times, a knowledge of the phenomena of life, as displayed in plants, has been most essential to the animal physiologist; and those who have attempted to disentangle the complicated knot of human nutrition and secretion, unfurnished with the aids which comparison is capable of affording, have invariably fallen into errors, as mischievous as they were unfounded.

Physiology, or the science of living beings, embraces two classes of researches: the one seeks to ascertain the uses of organization, the functions of the various parts; the other consists in the investigation of the mode of formation of the different tissues and organs, the laws in obedience to which they are produced, and the conditions essential to their development. This latter class of researches, to which the name of Organogeny may be given, is, when pursued in the vegetable kingdom, the one most interesting to the animal physiologist, because it is calculated to throw most light on the parallel development of moving and sentient beings.

Late investigations have also shewn that the laws of normal nutrition and secretion, when operating in an unaccustomed and perverted manner, are the immediate causes of disease; that inflammation is an instance of abnormal nutrition; that heterologous growths spring up under the action of the same forces as those which produce indispensable organs; and therefore the pathologist is deeply

concerned in this branch of physiology. And inasmuch as the same forces which enable tissues to grow still continue to preside over them, when formed, until their dissolution, and endow them with the activity peculiar to living structures,—and as it is by modifications of these forces that disease arises, and by restoring their natural working that disease is cured,—the study of the conditions under which tissues are formed must necessarily be of importance to the therapist. It is, therefore, to this department of vegetable physiology, that I shall chiefly direct the attention of the readers of this Report.

As the phenomena of nutrition and irritability are peculiar to vegetables and animals, and unlike anything we can observe in the mineral kingdom, they have been attributed to the operation of a special force, to which various names have, at different times, been given, but for which we shall adopt the appellation which is the most modern, and the most consistent with analogy, namely, that of the *vital force*. This force differs from the purely physical forces, such as gravity, cohesion, heat, &c., on the one hand, by discriminating different forms of matter; just as it is at variance with the chemical and electrical forces on the other, by producing adhesion *only* between similar forms of matter. But, although it must be admitted that the vital is a peculiar force, it does not follow that all the phenomena observable in living beings are due to its agency. On the contrary, we are justified in ascribing all things in accordance with the ordinary laws of the physical or chemical forces to the operation of these more powerful and general movers; and in many instances we shall best explain modifications of motions truly vital, by supposing them controlled by the interference of the other forces. One of the most serious errors into which the merely animal physiologists have fallen has been the ascribing all phenomena occurring in an organism to a mysterious and undefined vitality.

John Hunter recognised the vitality of the blood; this was an important step in physiology. It led to the recognition of vital actions in the nutritive fluid, previous to the act of organization. Vegetable physiology extends this doctrine. We see the palmella, the nostoc, and the protococcus, at first gelatinous and semifluid, at length containing organized cells. In the intercellular passages of more complicated vegetables, we find the essential elements of food, the water, carbonic acid, and ammonia, already converted into sugar, gum, and proteine compounds. MM. Mirbel and Payen^(a) have found that the mucilaginous contents of the youngest and last formed cells, are the richest in nitrogenous compounds. Harting^(b) and Mulder^(c) have ascertained that the older the cells become, the smaller the quantity of proteine matter found in their contents; but

(a) *Compte Rendus*, March, 1846.

(b) *Mickrochemische Onderzoekingen over den aard en de ontwikkeling van den Plantaardigen celwand medegedeeld.*

(c) *Versuch einer Physiologischen Chemie.*

this is in consequence of these compounds being absorbed into the structure of the cell wall. Nothing can be better proved than that the cytoblastema, or nutritive fluid out of which cells are formed, is produced without the necessary intervention of any organ,—that its formation precedes all organization.

The production of the cytoblastema in vegetables is a subject of great interest. Its constituents may be considered as essentially saccharine and proteine. Sugar, gum, dextrine, &c., may be considered as the same in chemical composition, and may, therefore, be included under the saccharine constituents. Albumen, gluten, and legumin, are also the same, or nearly so, in composition; these may be classed under proteine. The saccharine matters are solely composed of carbon, hydrogen, and oxygen; the proteine also contain the same elements, but in addition nitrogen, with minute quantities of sulphur, and, in some cases, phosphorus. The food of plants consists of water, carbonic acid, and ammonia. (Mulder considers that nitrogen is assimilated by vegetables.) The production of the saccharine constituents of the cytoblastema is easy to comprehend. The water and carbonic acid absorbed by plants contain the elements necessary for the formation of these compounds, only having an excess of oxygen. If we suppose the carbonic acid to become decomposed, and its carbon to unite with the elements of water, while its oxygen escapes, the proper elements for forming sugar or gum will remain, and exactly in the right proportions. The origin of the proteine compounds is not more difficult to understand. Sugar and ammonia contain the elements of proteine, with an excess of water and oxygen. Some of the latter probably replace the sulphur and phosphorus necessary for the formation of gluten or albumen, in some of the sulphates and phosphates absorbed from the soil. These changes are certainly in opposition to affinity; but we know that not unfrequently physical and electrical forces interfere with and control affinity. The inorganic compounds that enter into plants are placed in circumstances in which they never are in our laboratories. I think it unnecessarily mystifies the subject to ascribe these decompositions, as Baron Liebig does, to vital force. As far as we know of vital attractions, they occur between similar kinds of matter. Affinity acts in the opposite manner, and these decompositions and combinations so far accord with the operations of affinity.

The saccharine and proteine compounds contained in the cytoblastema are the common juices of vegetables. They are found in all plants, from an alga to an oak. They are found in the intercellular passages during the ascent of the sap; they constitute the contents of the youngest cells. The mould which grows on syrup is found to contain proteine(*a*), although the syrup itself contains neither nitrogen, sulphur, nor phosphorus. These elements must, in that case, be derived from the air. The escape of oxygen, we

(*a*) Mulder, *op. cit.*

perceive also, is synchronous with the very commencement of vegetation; the liberation of this element, we have seen, is equally necessary for the production of the saccharine and proteine compounds. No light is necessary for these reactions. Oxygen is exhaled by the rhizomorphæ of the Dresden coal mines, as well as by the trees of our forests; the subterranean root evolves it during its development, as well as the aerial branch. The absorption of carbonic acid and the evolution of oxygen are necessary to all vegetation. Further on we shall consider the source of the very large amount of oxygen thrown off from the green parts of plants, under the influence of light.

The proteine compounds, whether in solution or the solid state, can easily be detected by a very simple test. When a tissue, containing gluten or albumen, is immersed for a short time in strong nitric acid, it becomes tinged of a deep orange yellow, by the formation of xantho-proteic acid; by subsequent immersion in water of ammonia, the colour becomes more intense. By the employment of this test, Mulder and Harting have ascertained that the proteine compounds, at first abounding in the fluid cytoblastema, become at length absorbed by the solid tissues(*a*).

The cells of vegetables differ, in many respects, from those of animals. Some insects are said to contain cellulose, but starch has never yet been detected in the cells of any animal: the absence of starch granules may be considered a negative characteristic of animal organization. Another peculiarity of vegetable cells is the rarity of nuclei. Karl Müller has discovered the cause of these anomalies, to which we shall return further on. The cell-wall is at first composed, in every instance, of pure cellulose(*b*). We are enabled to recognise this substance by a test discovered by Schleiden. If cellulose be immersed in tincture of iodine, and then dried, it will merely become tinged with the yellow colour of the iodine. If subsequently it be plunged into strong sulphuric acid, the cellulose will turn blue. It would seem that the presence of the sulphuric acid causes the cellulose to change into a matter identical with that which composes starch. This change is not difficult to comprehend, inasmuch as starch and cellulose only differ in the one containing a little more of the elements of water than the other. A little water, added to cellulose, would produce starch; a little more water, added to starch, would produce sugar. We can perceive why these transmutations are so frequent. Sugar and gum are contained in the cytoblastema. The shifting of a few atoms of water is all that is requisite for converting these substances into cellulose. But this cellulose differs very much in properties from sugar or gum. It is capable of organization, which the others are not; its particles attract each other, and form a membraneous vesicle by their cohesion. As yet the proteine remains dissolved in the fluid contents of this vesicle.

(*a*) *Op. cit.*

(*b*) Harting and Mulder, *op. cit.*

Mulder and Harting consider that they have seen the membrane of the cell-wall perforated by numerous pores(*a*). Hugo Mohl(*b*) acknowledges that, at the earliest period it is capable of being examined, the membrane, rendered blue by iodine and sulphuric acid, does present an appearance under the microscope like that of a sieve, in which numerous points, rendered brilliant by the free transmission of light, seem as if they were actually pores. But he states that tinging the membrane very faintly blue, and using a power of 500 diameters, he has always been able to detect a fine diaphanous membrane spread across the apparent perforations. However that may be, the existence of these transparent dots shews that, at this very incipient stage of organization, there is something more than a mere precipitation on a nucleus, such as Schleiden supposes, and such as Ascherson produced by putting oil-drops into an albuminous fluid.

Mohl thinks that he has detected a cell-wall preceding the one composed of cellulose, to which he has given the name primordial utricle, and of which he considers the membrane covering the pores in the cellulose to be the remains. He believes that the thickening of the cell-wall takes place by depositions on the interior of this utricle. Harting and Mulder(*c*) both think, on the contrary, that they have discovered the membrane described by Mohl, contained in the interior of the cell; that its formation always follows that of the cell-wall, to which it feebly adheres; that it terminates, in many instances, by disappearing altogether: and they give it the name of the internal utricle. In properties this membrane is peculiar: it is insoluble in water, alcohol, the diluted acids, and concentrated solutions of many salts; but most of these reagents render it more apparent by causing it to separate from the cell-wall. The interest of this controversy consists in the determination of the question whether the cell-wall grows in thickness internally or externally; and we shall see further on that the probabilities are greatly in favour of the latter mode of increase.

The transparent dots visible on the membrane of the young cell-wall are placed in a spiral direction, a circumstance more easily observable, if the cell be a little elongated. This is the appearance which has given rise to the opinion that the walls of the young cell are composed of one or many spiral fibres agglutinated together(*d*). The internal layer of old cells remains permanently composed of cellulose, capable of being turned blue by iodine and sulphuric acid(*e*), lined, in some instances, by the internal utricle, which serves as a membranous sac for the cell contents(*f*). According as the cellular parietes thicken, new layers become deposited external to the cellulose. The thickened cell-walls may be divided into those which contain proteine, and those which do not.

(*a*) *Op. cit.*

(*b*) *Botanische Zeitung*, 15th, 22nd, and 29th of May, and 15th June, 1846.

(*c*) *Op. cit.*

(*d*) Harting's *Mickrochemische*.

(*e*) Harting, Mulder, and Mohl. *op. cit.* (*f*) Mulder and Harting.

Cell-walls, not containing proteine, are found in the tissue called *collenchyma*, immediately under the epidermis, in a great number of exogenous stems. The fibrous cells of the *Asclepiadeæ*, and many parenchymatose cells, with thickened walls, belong also to this class. In these cases, Harting considers that the incrusting matter is formed of pectates, or of a substance (*pectose*), which is isomeric with pectic acid, and easily becomes transformed into it. These substances may even be found in the walls of cells, which, on account of their youth and tenuity, we would otherwise be inclined to consider not incrustated. The horny perisperm of many monocotyledons is formed of cells whose parietes, destitute of proteine, should cause them to be ranked in this class. However, their chemical composition differs from the preceding tissues. The incrusting matter in this case is as much isomeric with vegetable mucilage as with cellulose ($C_{24} H_{19} O_{19}$), but it differs from both in its chemical properties. Mulder finds that the cellulose of elder pith is very peculiar, requiring the fuming acid of Nordhausen to bring out the blue colour with iodine.

The parietes of truly lignified cells always contains proteine. The proteine is distributed through the whole thickness of the cell-wall, and can be detected by nitric acid and ammonia. According as the parietes become impregnated with proteine, this matter disappears from the cell-contents. It would seem, therefore, that in the process of lignification the cell-wall absorbs the proteine from the liquid cytotlastema. The disappearance of this matter from the sap led Mirbel and Payen into the error of supposing that, the older the tissues of vegetables, the less proteine they contain. Besides cellulose constituting the inner lining, and proteine diffused through its entire thickness, the wall of a woody cell contains two other principles, disposed in layers external to the cellulose. The outer layer can be separated from the middle by the action of the mineral acids. It is unchanged by concentrated sulphuric acid. Harting considers it to be identical with the cuticle of the epidermis, and calls it the *cuticle of the ligneous cells*. Mulder does not regard it as identical with cuticle. At an advanced period, it can be detected in the internal layer. Harting looks on the cuticle of the epidermis as merely an excessive deposition of this layer on the epidermic cells. It is possible that it may precipitate on the exterior of cells from the sap contained in the intercellular passages. Instances will come before our attention of constituents of cell-walls being derived from without, and not from the cell contents. Between the cuticular layer and the cellulose, there is an intermediate layer in woody cells. The matter which composes it swells very much under the action of acids and alcalies, and dissolves in concentrated sulphuric acid. Harting regards it as the same substance already alluded to, as incrusting non-ligneous cells,—a pectate or pectose. He considers that it is disseminated through the outer thickness of the original cellulose. Mulder does not attempt to identify it with any chemical principle; and he does not consider it as an impregnation, but as a distinct layer.

These researches, however, lead to certain positive facts, viz.: that the ligneous cell-wall consists of three layers, the outer unacted upon by sulphuric acid, the middle dissolved by it, and the inner turned blue by iodine and sulphuric acid; and that the whole thickness of the cellular parietes is impregnated by proteine.

Mohl thinks that there never are tubes communicating between adjoining cells. Harting considers that there frequently are. The pores in the membrane of contiguous cells, and which he believes to be pervious, are always placed directly opposite to each other, and, if nothing subsequently interferes, must necessarily form a communication between the cavities of the cells. It sometimes happens, however, according to him, that the external layer grows more rapidly than the other layers of the cell-wall, and will then form a diaphragm interrupting the continuity of the tube. On the other hand, it may also happen that the external layer may grow less rapidly than the other, and there will be then produced between the neighbouring cells a little cavity, opening by pores into the adjoining cells.

Much remains to be learned with respect to the destination and uses of the inorganic constituents of vegetable food. Some of them appear to be essential for the perfection of the cell-walls. Silica and carbonate of lime are sometimes deposited in such quantities in these membranes as to preserve the form of the tissues after their being subjected to combustion. In other instances crystals are found lying free in the interior of cells, or, as Payen has described, contained within a particular membraneous cyst. The cause of the deposition of these crystalline or amorphous deposits is obviously chemical; so is, likewise, their accumulation in particular situations. Thus the occurrence of an excess of phosphates in seeds is connected with the large quantity of proteine compounds in these organs, an albuminous solution being a solvent for the earthy phosphates(a).

I have said that vegetable cells rarely have nuclei or cytoblasts. This is, however, only true of fully developed cells. In very young cells cytoblasts can be readily enough detected. According to Harting, the substance which constitutes the nucleus appears to have much analogy with that of the internal utricle: neither cellulose nor proteine can be discovered in it. Nitric or sulphuric acids, diluted with one-fourth of their weight of water, do not dissolve it, even after prolonged action. Karl Muller(b) appears to have discovered what becomes of the cytoblasts in the mature cell. He thinks that he has ascertained that they become converted into starch granules. In watching the gradual development of the nucleus of chara, he believes that he has been enabled to seize the point at which the transformation takes place. He thus describes the process of starch formation. When only one cytoblast is contained in a cell, and all the cytoblastema has become exhausted, the cytoblast expands in all directions, until it has reached the circum-

(a) Mulder, *op. cit.*

(b) *Botanische Zeitung*, Dec. 1845.

ference of the cell membrane that surrounds it. The outline which it then presents being very thick and dark, we may conclude that its membrane is very thick. It is not, however, perfectly homogeneous, but appears granular. It is manifestly hollow, which can be well observed by colouring it of a very pale blue with iodine. Generally, however, some spherical or reniform granules can be perceived on its interior. This is the simplest case: where several cytoblasts occur in the same cell, their proximity more or less modifies their forms, but the essential mode of their development is always the same. Karl Nägeli(*a*) has described the process of starch formation as it occurs in the young leaf of the *Caulerpa prolifera*. Passing from the youngest downwards to the first formed part of the leaf, he finds several zones of progressive development. The cell contents are at first nothing but a homogeneous mucilage; lower down this mucilage becomes granular; still further down utricles are, according to him, perceptible in the cell sap, containing a yellowish mucilage, homogeneous in the smaller utricles, granular in the larger; below this is the starch zone, containing amyllum granules mixed with utricles, and utricles containing minute starch granules, together with granular matter. Sometimes two or three, or even four or six starch granules are in one utricle; lower down the number of starch granules increases, and that of utricles diminishes. These observations, although apparently opposed, are not really discordant. It would seem that the production of starch granules is dependent on an abortive effort at cell formation. Under pressure, and where the cytoblastema has been nearly exhausted, as in the nucleus of chara, the cytoblasts cover themselves with layer over layer of saccharine matter, and from the isomerism of sugar and gum with cellulose and starch, and of the two latter with each other, it is not extraordinary that the saccharine matter of the remaining cytoblastema should deposit itself as the matter of starch rather than as cellulose; we know that starch granules are composed of superimposed layers. In the young leaf of the *Caulerpa prolifera* the attempt at cell formation is more successful. Utricles are at first produced, but as the cytoblastema diminishes, and the cell-walls thicken, the minute granules, or nucleoli, are only capable of coating themselves with superimposed layers, and producing starch granules.

The development and composition of spiral vessels and ducts simulates that of ligneous cells. The parietes, as well as the fibres, are at first formed of cellulose. At the same time that the neighbouring cells are becoming woody, the vessels undergo an analogous change. The chemical composition of the vascular and cellular constituents of wood are therefore identical. The growth, in diameter, of spiral fibres, cannot be by deposition or absorption from cytoblastema constituting the contents of the vessels, for at this period spiral vessels only contain air. It must be, accordingly, by

(*a*) *Zeitschrift für Wissenschaftliche Botanik*; *Erster Band, Erster Heft*.

permeation from neighbouring cells. Vessels are always, at first, developed in the form of cells, each containing one or more spiral fibres. These cells, placed one above another, at length communicate, and form a tube closed at both extremities, and, at first, moniliform from the contractions that continue to point out its cellular origin. The tubes, in dicotyledous plants, have their least diameter nearest the pith. When the diameter is small, the spiral fibres of the chain of vesicles unite by their extremities. According as the tubes increase in diameter, the fibres break into pieces sufficient to constitute rings, or it may be merely dots. Such is the origin of spiral vessels, annular, and punctated ducts(a).

From what we have seen, it appears probable that the process of lignification does not take place in a descending but in an ascending direction. This is quite contrary to what vegetable physiologists have hitherto taught. Mirbel, it is well known, supposes that vegetable fibres are developed out of a liquid derived from the descending sap, which exudes between the bark and wood in autumn, and to which he gives the name of cambium. De Lahire advanced the doctrine that vegetable fibres might be considered as the roots of the buds, one set of which descended through the liber and another through the alburnum; and this view has of late years been most eloquently advocated by Dupetit Thouars. But, if late observations be confirmed, it will appear that the development of vegetable fibre is dependent solely on the constituents afforded to the cells by ascending sap, which constitutes their cytoblastema. These vegetable fibres consist of elongated ligneous cells in the liber of exogens, and of a mixture of these elongated ligneous cells and ducts in the woody parts. We have traced the gradual development of these tissues; we have seen how rapidly the process of lignification proceeds. It has been shewn that all cells, as well those that are destined to become ligneous, or to form ducts or spirals, as those that are intended to constitute collenchyma or parenchyma, are originally constituted of the same elements; and that the matters which subsequently incrust them belong to the primæval cell-generating fluid: that the soluble substances, identical or isomeric with sugar, and the proteine compounds are formed as a necessary preliminary to all organization. We are, therefore, forced to acknowledge that the descending or elaborated sap has nothing directly to do with the formation of these vegetable fibres. It likewise follows that the production of vegetable fibres is not a subsequent growth to that of the formation of parenchymatous cells. The increase in size of the stem is not, therefore, due, as has been heretofore thought, to a new and interstitial growth of vegetable fibres, either penetrating downwards from the buds, as Dupetit Thouars supposes, or organized out of the cambium, according to the opinion of Mirbel. These vegetable fibres are not the produce of a new growth, but of a more advanced development.

(a) Mulder and Harting, *op. cit.*

These novel and unexpected views of vegetable development are strongly corroborated by some observations of Professor Unger's, on the formation of annual concentric layers in exogenous woody stems(*a*). He had observed that the summer of 1846 was remarkable on account of its heat, accompanied in parts of Germany by considerable humidity. The consequences of these conditions were that vegetation was exceedingly luxurious, and that, as in tropical climates, not only did many plants flower a second time, and the vines produce a second crop of fruit, but, in several instances, the buds of the following year became developed to a considerable extent into branches bearing leaves. Under these circumstances, M. Unger became desirous of ascertaining if, in these cases, two distinct woody rings had become formed, as two sets of buds had been developed in the course of the year. As the result of an examination of a considerable number of young shoots, he found that such was not the case; and he is therefore led to conclude that the mere development of two sets of buds in the year will not give rise to two distinct zones; but that there must also be, to produce this effect, an intermediate check to vegetation; and that, consequently, if we could suppose *a climate unchanging throughout the year, no concentric zones whatever would be produced*. He applies this law to fossil botany, and inasmuch as there are scarcely any perceptible zones in the fossil wood of the transition and coal formations, that those of the coniferæ in the Lyas are perceptible, and that those zones become manifestly distinct in the oolite, he concludes that the establishment of seasons has only gradually taken place in the earth's history. However that may be, the correspondence of a single woody zone with the development of two generations of buds, is hardly reconcilable with either of the theories of MM. Mirbel or Dupetit Thouars.

Observations that at first appear very much in favour of the hypothesis of the latter botanist have been lately made by M. Trecul. This observer finds that the rhizoma of the *nuphar lutea* has the structure of an endogeneous stem, although the embryo is truly dicotyledonous(*b*). When cut transversely, neither concentric layers, nor medullary canal, nor medullary rays, can be observed, but, on the contrary, a cellular network interposed between fibro-vascular bundles, forming, at a certain distance from the circumference, a zone concentric to it. Some others are distributed in the centre; finally, external to the zone there are found others more delicate than the preceding; these are derived from the leaves, longitudinal sections of which lead to the same conclusion. If we remove with precaution the circumferential cellular tissue, taking care to leave the bases of the roots and the cicatrice of the leaves, we arrive at the fibro-vascular zone already alluded to; and M. Trecul has satisfied himself that it is constituted of fibres disposed in a ring, from which emanate the radicular fascicles as well as all the other fibres of the stem. It

(*a*) *Botanische Zeitung*, 1847.

(*b*) *Journal de Pharmacie et de Chimie*, April, 1845.

may be perceived, likewise, that the fibres of the external face of each petiole all grow upon the same side of the stem as that to which the leaf belongs. Of these fibres the nearest to the back of the petiole have their insertion below the roots situated at the base of the petiole; the more lateral have their origin below the roots corresponding to the neighbouring leaves. The other bundles of the same petiole come from parts more profound. In following them into the interior of the stem we can see that they traverse it, and arrive at that part of the peripheral ring that is on the opposite side. Each of the leaves repeats these phenomena, all the fibres crossing one another, and, emitting connecting ramifications, give to the stem this structure, seemingly so complicated. Here, M. Trecul thinks, are very evidently shewn the analogues of the *faisceaux précurseurs* that M. Mirbel has remarked in the stipe of the date palm. The adventitious roots of the *nuphar lutea* present the structure of those of monocotyledonous plants. They grow at the base of each of the leaves, but are not all developed, those of the superior surface of the stem remaining stationary, concealed in the cellular tissue of the latter. These consist of merely the central bundle of fibres; the others are furnished with circumferential tissue and rudimentary spongioles. Wherever these roots become developed, their centre is occupied by a cylinder of elongated cellules, emanating from the reticulated fibres of the circumference of the rhizoma, chiefly under the form of a little mamillary projection which becomes elongated obliquely from above downwards, and round which simultaneously grow the circumferential tissue of the root and spongioles. Surrounding the central cylinder are disposed the fibrous bundles in twelve or fifteen radiating fascicles. These vessels are prolonged from the stem in the same manner as those which are continued into the petiole and peduncle. When the young root becomes liberated, by tearing the tissues which cover its extremity, it bears on its summit, while elongating itself, a little *caul*, which is no other than the spongiole. This decays at its most aged or external part, in measure as it becomes renewed at its central part adjacent to the summit of the central cylinder. Beneath this spongiole the epidermis of the root becomes organized, as well as the hairs which it carries. These latter are discernable in consequence of the incessant destruction of the base of the spongiole. The roots frequently give birth to radicles, which themselves emit secondary radicles. The development and structure of these little roots of the second order scarcely differ from those of the same organs in other plants, except that their vessels in lieu of being disposed circularly round the central cylinder, form a little bundle which occupies the axis of the radicle. These same vessels are not prolonged from those of the root, but are applied by their bases, which are swollen, to the vascular fascicles on the external side of this organ.

In a subsequent memoir(a), M. Trecul enters more generally into

(a) *Annales des Sciences Naturelles*, Nov. and Dec. 1846.

the origin of roots. He is led from his dissections to conclude that there always exist, normally, in certain plants, at fixed places, what may be called buds of the roots, or latent rudimentary roots. The evolution of the root always commences, by a small cellular mass becoming developed, either at the extremity of one or many bundles of fibres converging to a point, or at the side of a single bundle, or at the contact of two neighbouring bundles, or even at the surface of a continuous woody layer, without medullary rays, or again opposite one or many of these rays when they exist. M. Trecul finds that the opinion very generally entertained, that adventitious roots arise from the place where the medullary rays pierce the bark, is erroneous. He describes the latent root as consisting of three parts: the one central, whose nature and elementary composition varies; the second cortical; the third enveloping the extremity of the root, or even the entire root, to which latter he gives the name of pileorhizon. The central system of the root is always composed, at least at the base, of similar elements to those existing in the part of the stem from which it arises; thus, it is sometimes vascular as in *aspidium filix mas*; sometimes medullary, as in *valerian*; sometimes woody, as in the cereal grasses; and sometimes of the nature of the medullary rays. He has always seen the vessels of the root originate in contact with the fibro-vascular system of the stem, and become prolonged from thence into the rudimentary radicle. He has never seen the vessels formed in the first instance in the root, and subsequently grow inwards to join the vascular system of the stem.

The force of the argument derived from the foregoing observations, in favour of Dupetit Thouar's theory, depends on the continuity of the fibres of the petiole to the origin of the roots in the complicated fibro-vascular structure of *nuphar lutea*, and the supposed constancy with which the fibres of the roots originate in contact with the fibres of the stem. But there are other observations that show that the latter fact cannot be universal. Mohl and Unger have seen the vessels first formed in the young root, and in a more mature state joined side to side with the vascular system of the stem. Mirbel's observations on palms are of a similar nature; he speaks of the central vessels of the aerial roots as becoming more slender as they leave their point of origin in the root, and finally becoming lost among the central fibres of the stem; whilst the peripheral fibres, he says, divide into two portions after they have penetrated the stem, some of which ascend, and others descend parallel with the other fibres of the stipe. But, even allowing the universality of the fact stated by M. Trecul, it is a virtual abandonment of M. Dupetit Thouar's theory, which requires that the root fibres should be continuous with the fibres of the stem, and not merely originating in contact with them.

M. Mirbel thinks that the law discovered by himself and Payen, that nitrogenous compounds most abound in the sap of growing parts is fatal to M. Dupetit Thouar's theory(a). He says that this

(a) *Compte rendus*, March, 1846.

law is at variance with the supposition of the descent of vegetable fibres, inasmuch as in that case the youngest part of the fibre, and that at which nutrition may be supposed most active, would be constantly passing down into parts less nitrogenous.

This is true; but the argument equally affects his own theory; for the interstitial formation of fibres, from the cambium between the bark and wood, would be just as much in opposition to this law. But this law is perfectly in accordance with the supposition of lignification consisting in an advanced organization of tissues already existing, at the expense of the nitrogenous cytoblastema out of which they were originally formed,—the only supposition, indeed, reconcilable with the discoveries of Harting and Mulder. The difficulty that remains to be explained has not yet been touched on. Why should these transformations affect continuous rows of cells, so as to give rise to fibres and vessels? We may remark, in passing, that De Candolle's hypothesis, that *lenticelles* are buds of the roots, is totally untenable.

We have seen that Nägeli looks on the terminal cells in the leaf of the *Caulerpa prolifera*, as the youngest or last formed. A very different opinion is formed by Dr. de Mercklin, who has lately published a treatise on the development of leaves(*a*). He describes the leaf as commencing in a little nipple-shaped prominence on the axis of the bud; and he maintains that the apex of this mammilla is always either the summit of the leaf or the extremity of the common petiole. The part of the leaf towards the summit is always, according to him, that which is first developed. All leaves in their commencement resemble simple leaves. The stipules, and the inferior part of the petiole, are invariably, he says, the last formed portions. Compound leaves always commence like simple leaves, and, in subsequently becoming pinnate or digitate, always pass through the intermediate forms of pinnatifid or palmate. The petiole (whether of a simple leaf or a compound leaf) must, both as regards its position relatively to the axis, as well as its structure, be considered an immediate prolongation of the axis; it certainly exercises a great influence on the formation of the leaf. All the parts of a leaf are originally symmetrical. In compound leaves, the folioles are always at first opposite. The lamina is the first part of the leaf which becomes developed. Notwithstanding the decided manner in which these opinions are advanced by Dr. de Mercklin, we are inclined to agree with M. Trecul(*b*), that just as the summit of the stem and the extremity of the root are always the youngest parts of each of these organs, so it is with the leaf, the margins of the limb being the least aged; that the petiole and the median line are the first to grow, the sheath and the limb afterwards forming on the sides of the former.

The changes which take place in the sap, under the influence of light, are easiest studied in the formation of *chlorophylle*, which so

(*a*) *Entwicklungsgeschichte der Blattgestalten*, Jena, 1846.

(*b*) *Journal de Pharmacie et de Chimie*, June, 1845.

rapidly becomes produced in the majority of plants under exposure to this agent, and is the cause of the green colour of leaves and young stems. Karl Nägeli has made researches on the production of this substance(*a*). He finds that, in the young leaf of the *Caulerpa prolifera*, the chlorophylle zone is lower down than the starch zone; it commences by the appearance of utricles full of greenish matter; further down are utricles containing granules; and finally, in cells still older, are fine chlorophylle granules. From the chlorophylle being at first contained in vesicles, it is evident that in this case, as well as in the production of starch, there is at first a tolerably successful attempt towards cell formation; but the granular matter contained in the vesicles has a different source. Chlorophylle contains nitrogen, and, therefore, is most probably derived from an incipient decomposition of the proteine constituents of the cytoblastema: starch, on the contrary, is only an isomeric modification of the saccharine constituents of the cytoblastema. The process of decomposition having once commenced, it may be supposed that, as in ordinary vinous or acetous fermentation, the process of molecular change soon spreads, under the influence of the decomposing proteine, to the other materials of the sap; the products of this fermentation will, of course, be modified by the circumstances under which it takes place; but from its occurrence may be dated the formation of the various proper juices, whether oils, resins, alkalies, acids, colouring matters, &c., which, more or less peculiar to each vegetable, descend through the bark of exogens, and either exude or deposit themselves in particular receptacles of secretion. It follows from Nägeli's researches, that the oxygen which is evolved in such quantity from the green parts of plants, under the influence of light, can only be due to the commencement of this fermentation; and that the way that light acts is as a catalytic agent, just as the presence of the sulphuric acid, aided by a certain temperature, causes starch suspended in water to become converted into grape sugar.

From what we have seen of the formation of saccharine and proteine compounds, it is plain that the evolution of oxygen is a condition essential to the commencement of vegetation; but the escape of oxygen, under the influence of light, is quite a distinct phenomenon.

The function of *fecundation in plants* remains surrounded with difficulties. The hypothesis of Schleiden, that the *boyau*, descending from the pollen grain through the micropile, bursts, and emits granules in the embryo-sac, which become the nucleoli of cells, appears, notwithstanding its plausibility, to be abandoned as inconsistent with observation. Mr. Browne, in his researches on the impregnation of the orchideæ and asclepiadeæ(*b*), observed tubes in the placentæ, which he ascertained did *not* communicate with the pollen grains, and

(*a*) *Zeitschrift für Wissenschaftliche Botanik*; *Erster Band*.

(*b*) *Transactions of the Linnæan Society*.

to which he gave the name of mucous tubes. Signor Amici(*a*) says that it is impossible to be mistaken as to the fact that the *boyau* does *not* open into the embryo-vesicle; on the contrary, that the granular contents of the *boyau* are greenish, while those of the embryo-vesicle are white, and that the latter, at the time of the introduction of the *boyau* through the aperture of the primine, have subsided to the bottom of the vesicle, leaving the upper part transparent. He asserts that the extremity of the pollen tube is merely applied to the external surface of the vesicle. Here are two observers of the highest eminence, the one stating that he has been able to demonstrate that some of the placental tubes (mucous tubes) do not communicate with the pollen grains; and the other proving that the other extremity of the tubes does not ever directly communicate with the embryo-sac. Signor Gasparini(*b*) states that he has seen the pollen of a species of citrus, which, when placed on the stigma, neither protruded a filament nor a pollenic *boyau*, but merely presented a slight prominence on its surface, which shortly burst, and permitted the fovilla to escape, and become mixed with the viscid humour on the stigma; that in the style he could not, with the greatest research, detect a trace of anything like a pollenic tube; and yet opposite the micropile he discovered filaments protruding from the placenta. And the same observer has perceived similar filaments protruding through the opening in the external membrane of the ovule of *Cytinus hypocistis*, under circumstances where sexual contact could scarcely have occurred. At the Scientific Congress at Naples in September, 1846, the Professor was enabled to exhibit a preparation of this kind to Mr. Browne, M. Link, and other eminent botanists. Dr. Dickie(*c*) has detected in the ovule of the *Narthecium ossifragum*, a tube permeating through the foramen, and passing upwards, along the placenta, but terminating in a blind extremity. Mr. Griffith (a botanist lost too soon for science) has represented a similar appearance in the anomalous ovule of *Santalum*(*d*). All these observations tend to shew that physiologists still remain very much in the dark with respect to the process of impregnation; and, at the same time, it is one, of all others, especially deserving of attentive examination.

It is very interesting to observe the analogy which exists between the process of growth in organs very different from each other, or even between plants the most simple and those the most complicated. At the verge of the vegetable kingdom we find plants like the protococcus, the palmella, and the nostoc, consisting of a gelatinous matter containing minute cells, which, whether they be nucleated or not, are manifestly formed by the coagulation of the mucilage into a hollow, cyst-like membrane. In the confervæ we find the cells, by the union of which the filaments are formed, con-

(*a*) *Giornale Botanico Italiano*, di Filippo Parlatore, ann. 2.

(*b*) *Musæo*, vol. viii. p. 45.

(*c*) *Annals of Natural History*, vol. xvii. p. 9.

(*d*) *Linnæan Transactions*, vol. xviii.

taining a turbid-coloured mucilaginous fluid, which is capable of separating in time from the more limpid fluid with which it is mixed, and forming masses of various shapes in different species. A beautiful example of this has been long known in the genus *Zygnema*, in which parallel filaments, lying near each other, have been observed to throw out opposite pullulations, which at length uniting, and their extremities becoming ruptured, they communicate to form a tube, when the mucilaginous and coloured liquid (endochrome) of the cells thus communicating collects, either entirely into one cell, or else into the communicating tube, presenting masses variously shaped according to the species. A somewhat similar phenomenon has been lately discovered by Mr. Thwaites in some species of diatomaceæ(*a*).

The mucilaginous mass of endochrome in time becomes hollow, and and thus forms a spore. This is precisely analogous to what we have alluded to as occurring in palmella. Mohl considers that a fluid of a mucilaginous consistence, containing nitrogen as a constituent, and becoming brown under the influence of iodine, is the material out of which cell-formation always takes place(*b*): to this he gives the name of protoplasma. It is, in fact, identical with the cytoblastema of Schleiden. Now it is remarkable that the mucilaginous and turbid contents of the pollen present these characters, and Sullivan has found that it likewise contains nitrogen. Germination may proceed from a single cell, or from a combination of cells. If from a single cell, this may, in the character of a parent cell, develop others in its cavity; this occurs in many simple plants, such as *Globulina*: or the cell may become prolonged, and develop other cells on its exterior; this is what takes place in all the fucæ, lichens, fungi, mosses, ferns, characeæ, &c. One of the most remarkable examples of this kind of development is that which occurs in chara. Karl Müller(*c*) describes the nucleus of this tribe as consisting of a central nucleus, five long, spiral, tubular spores surrounding it, and an external membrane surrounding the spores. In germination, four of the spores turn downwards to form roots, and one directs itself upwards to form the stem. The latter, after ascending for some distance, produces six cells upon its summit, one in the centre, and five in a whorl surrounding it; and these, as they become developed, at first surround the central one in a spiral, but by-and-by separate from it, and spread themselves centrifugally to form branches, while the central one elongates itself to continue the axis. This process again and again becomes repeated, until at length, by an arrest of this mode of development, nuclei become regenerated.

In the lycopodiaceæ, according to Karl Müller, there is another variety of germination(*d*). In this family it has been long known

(*a*) Annals of Natural History, July, 1847.

(*b*) *Botanische Zeitung*, vol. iv. p. 75.

(*c*) *Ib.* June, 1845.

(*d*) *Botanische Zeitung*, July and August, 1846.

that there are two dissimilar kinds of granules capable of being detected. One kind is well ascertained to be capable of germinating; the nature of the other variety is still obscure. The kind which germinates consists of cells which contain a fluid answering to the characters of the protoplasma of Mohl. In the act of germinating, cells may be observed to form in the midst of this mucilage, and uniting with each other, and continuing to increase in number, they at length burst through the common investing membrane, and become a new plant. The reproductive organ, in this instance, acquires many of the characters of an ovule, although without a foramen or any evidence of being subject to impregnation.

Next in complexity is the ovule furnished with a foramen, and undergoing impregnation. Under such circumstances the embryo may be developed, as is most usually the case, within the ovule; or, as Schleiden has shewn with regard to the rhizocarpeæ, external to it. Something similar to the latter mode of development has been observed by Mr. Griffith in *santalum*, *osyrus*, and *avicennia*.

RETROSPECT

OF THE PROGRESS OF CHEMISTRY FOR THE YEARS 1846 AND 1847.

BY WILLIAM SULLIVAN, Esq.,

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It was originally intended to give an annual Report of the Progress of Chemistry, but, owing to the press of more practical matter, none appeared for the year 1846. I have, therefore, thought it necessary, in order to make the Reports complete from the commencement of the present Series of this Journal, to include the more important Researches of 1846 in the retrospect for the past year.

The limited space which can be afforded to a report in a journal of this kind will forbid my noticing any but the more important memoirs. I have devoted more space to the purely theoretical and physical part of chemistry than is usually done; and although many may be at a loss to know what connexion such subjects have with medicine, I believe them to be the only basis on which a true chemical science can be founded. The chemist who diminishes the number of substances does more for science than he who increases them; and he who connects a number of facts by some general law opens up new fields for research. The number of such laws is now very rapidly increasing, and some hopes may be indulged in that chemistry will ere long become a mathematical science.

The theory and nomenclature of Laurent and Gerhardt, with some unimportant alterations, having been adopted by Leopold Gmelin, in his *Handbuch der Chemie*, and no complete account of the views of these chemists having, as far as I am aware of, appeared in English, I have thought it necessary to give a short account of

them in the present Report, although it is now three or four years since the original memoirs appeared in France. The adoption of these views by such a man as Gmelin, and the introduction of the nomenclature founded on them into the fourth volume of his celebrated work on chemistry, has given them an importance which will, I hope, secure them that attention which they deserve.

Dumas, in 1840(a), considered that chemical compounds may be regarded as planetary systems, in which the atoms maintain their relative positions by the force of their mutual affinities; and that if an atom of one of the substances composing such a system be replaced by an atom of another substance, the system remains unaltered. He also considers that a compound atom can be substituted for a simple one without changing the constitution of the group. All bodies are capable of this substitution,—if we except, probably, carbon,—but hydrogen is the one most readily so.

If the substitution takes place atom for atom, and that the relative position of the atoms in the compound remains the same, the new combinations produced belong to the same *type*. Dumas assumes two kinds of types,—the chemical, and the mechanical or molecular.

Compounds which contain the same number of atoms (equivalents of Dumas), combined in the same manner, and possessing the same fundamental properties, belong to the same *chemical type*. Thus acetic acid, $C_4 H_4 O_4$, and chloro-acetic acid, $C_4 HCl_3 O_4$, belong to the same chemical type; so also do aldehyde, $C_4 H_4 O_2$, and chloral, $C_4 HCl_3 O_2$, and chloraldehyde, $C_4 Cl_4 O_2$; chloroform, $C_2 HCl_3$, bromoform, $C_2 HBr_3$, iodoform, $C_4 HI_3$, and marsh gas, $C_2 H_4$, are also belonging to the same type.

Combinations belonging to the same chemical type always yield analogous or identical products of decomposition. Thus acetic acid, $C_4 H_4 O$, is decomposed, by being heated with excess of potash, into $2CO_2$, and marsh gas, $C_2 H_4$; and chloro-acetic acid also yields, by boiling with solution of caustic potash, $2CO_2$, and chloroform, $C_2 HCl_3$, which belongs to the same chemical type as marsh gas.

Two combinations, one of which may have been formed from the other by substitution, containing the same number of atoms, combined in the same manner, but having different chemical properties (one being acid, and the other being neutral or basic), he does not consider to belong to the same chemical type, but they may still form a sort of natural family, that is, may have the same *mechanical* or *molecular type*. Thus pyroxilic spirit, $C_2 H_4 O_2$, and formic acid, $C_2 H_2 O_4$, have the same mechanical type, as have also alcohol, $C_4 H_6 O_2$, and acetic acid, $C_4 H_4 O_4$.

Laurent fully adopted these views, and in a series of beautiful papers on the products of naphthaline, &c., extended and confirmed them, and finally developed them in a much more perfect manner than Dumas had done, in his nucleus theory.

(a) *Annal. de Chim. Phys.* 73, 73.

According to this theory, the atoms of organic compounds are partly nuclei (*noyaux*) and partly combinations of these nuclei with other substances deposited externally on them. The nuclei are collections of carbon atoms with the atoms of some other elements, forming mathematical figures; the figure so produced, as well as the number of the atoms forming it, being different for each substance.

In his first paper on this subject he thus expressed this view : If we imagine a regular sixteen-sided prism, having at each angle an atom of carbon, we shall have altogether thirty-two atoms of carbon, and if we further imagine an atom of hydrogen to be placed in the middle between each angle, making altogether thirty-two atoms of hydrogen; and finally, if we suppose one atom of water to be placed on each base of the prism, representing the two pyramids in a crystal of the same form, we shall have the combination, $C_{32} H_{32}, 2HO$. Now in the same manner as we can mechanically split a crystal, and separate the primitive nucleus from the secondary covering or envelope, can we also chemically, for if we take away the two pyramids of HO , which form the bases of the prism, there will remain the primitive form or nucleus. If we act on this nucleus with chlorine or oxygen, we remove hydrogen; and the prism will then be destroyed, unless we replace the atoms of hydrogen by an equivalent number of oxygen or chlorine atoms. Now the HO or HCl formed by this action may either escape or form pyramids on the prism, and thus give rise to secondary compounds, still containing the primitive nucleus, which we can again separate by chemical splitting, as, for example, by potash, which removes the secondary prisms of HCl or HO , and leaves the primitive nucleus.

The number of atoms constituting such a primitive nucleus is always even, as is also the number of the atoms of its constituents. There is always a simple proportion between the number of atoms of carbon and the number of atoms of the other constituents, and generally as follows: 2:2; 4:4; 8:8; 32:32; 6:4; 12:6; 12:8; 14:6; 18:8, &c.; and but very seldom a more complex relation.

When the nucleus consists of only carbon and hydrogen, it is denominated a *primitive* or *fundamental nucleus* (*noyau fondamental*); when one or more or all the hydrogen atoms have been removed and substituted by an equal number of atoms of some other body, which occupy the same place in the nucleus as the hydrogen atoms did, it is called a *derivative nucleus* (*noyau dérivé*).

The elements which most generally substitute the hydrogen are iodine, bromine, chlorine, oxygen, nitrogen, and the metals; and the compound atoms are NO_4 , for shortness' sake generally expressed by an X ; $NH_2 = Ad$, or amidogene; $NH_3 = Am$, or ammonia; $AsH_2 = Ar$, or arside; $C_2N = Cy$, or cyanogen.

All nuclei are neuter, even when they contain O , Br , Cl , NO_4 , &c.; and the properties of a body are much less changed by the substi-

tution of Cl, Br, or I, for the hydrogen of its nucleus, than by O, NO_4 , or NH_2 .

Examples of Nuclei.—In the Ethene series, olefiant gas, $\text{C}_4 \text{H}_4$ = ethene, is the fundamental nucleus: chlor-ethase = $\text{C}_4 \text{H}_3 \text{Cl}$; brom-ethase = $\text{C}_4 \text{H}_3 \text{Br}$; ar-ethase = $\text{C}_4 \text{H}_3 \text{Ar}$; chlor-ethesè = $\text{C}_4 \text{H}_2 \text{Cl}_2$; chlor-ethisè = $\text{C}_4 \text{HCl}_3$; chlor-ethose = $\text{C}_4 \text{Cl}_4$.

The termination in *se* determines the substance to be a derivative nucleus; the vowel before *se* shews the number of hydrogen atoms which have been replaced by the other body. If one atom has been substituted the word terminates in *ase*; if two, in *ese*; three, in *ise*; four, in *ose*; five, in *use*; six, in *alase*; seven, in *alese*; eight, in *alise*.

If the element which substitutes the hydrogen is not named, O is to be understood; if another element substitutes it its name is prefixed: thus chlor-ethase is ethene in which one atom of hydrogen is replaced by one of chlorine, and in chlor-ethose all the hydrogen is substituted by chlorine.

In the Naphthene series, naphthaline = naphthene, $\text{C}_{20} \text{H}_8$, is the fundamental nucleus, from which are formed thirty-three derivative nuclei, of which I shall just mention a few: Naphthase, $\text{C}_{20} \text{H}_7 \text{O}$; ninaphthase, $\text{C}_{20} \text{H}_7 \text{X}$; amanaphthase, $\text{C}_{20} \text{H}_7 \text{Ad}$; chloranaphthése, $\text{C}_{20} \text{H}_6 \text{OCl}$; chloréninaphthose, $\text{C}_{20} \text{H}_4 \text{XCl}_3$; chloribronaphthuse, $\text{C}_{20} \text{H}_3 \text{Br}_2 \text{Cl}_3$; chlônaphthalase, $\text{C}_{20} \text{H}_2 \text{Cl}_6$; chloroxénaphthalese, $\text{C}_{20} \text{HCl}_5 \text{O}_2$; &c.

All these derivatives have the same type, which we may call the *nucleus type*, and are therefore supposed to have the same mathematical figure.

But as very frequently atoms of different elements, and also compound atoms, deposit themselves on the nucleus, a number of new types belonging to the same series thus arise, differing according to the number and nature of the atoms so deposited. The substances thus deposited on the nucleus may be called the *envelope*, and this, with but few exceptions, consists of an even number of atoms, generally 2, 4, or 6, and very seldom more.

Very rarely more than two atoms of hydrogen deposit themselves on the nucleus; thus, marsh gas, $\text{C}_2 \text{H}_4$, may be considered as $\text{C}_2 \text{H}_2$ (palene) + H_2 .

From two to six atoms of chlorine, bromine, iodine, or sulphur, can deposit themselves on the nucleus. They can be again removed by potash, without replacing them by any other substance. Sometimes the whole of the chlorine, &c., united with the nucleus, combines with the potash, and leaves the nucleus unchanged; or else one-half of the atoms of the envelope, with an equal number of the hydrogen atoms of the nucleus, combine with the potash, while the other half of the chlorine or bromine atoms of the envelope enter into the composition of the nucleus in place of the hydrogen removed. But the bromine or chlorine existing in the nucleus is removed with great difficulty by potash, and when removed, the

nucleus is either entirely broken up or changed into another, unless the chlorine, &c., removed is substituted by some other substances.

As examples of such combinations the following from the ethene series may be given: oil of olefiant gas, chlorure d'ethène, $= C_4 H_4, Cl_2$; chlorure de chloréthase, $C_4 H_3 Cl, Cl_2$; sesqui-chloride of carbon = chlorure de chloréthose, $C_4 Cl_4, Cl_2$.

A fundamental or derivative nucleus can combine with two, four, or six atoms of oxygen. When it combines with two atoms it is generally converted into a *neutral oxide*, and sometimes, but very seldom, into a *weak acid*. The combination with a fundamental nucleus is denominated a *protogénide fondamentale*, and that with a derivative a *protogénide dérivé*.

Thus, aldehyde, $C_4 H_4, O_2$; oil of bitter almonds, $C_{14} H_6, O_2$; and oxide de chloroxénaphthalise, $C_{20} Cl_6 O_2 + O_2$, are examples of neutral oxides; while phaenic acid, $C_{12} H_6, O_2$; chlorphaenusic acid, $C_{12} HCl_5 + O_2$; and picric or nitrophaenusic acid, $C_{12} H_3 X_3 + O_2$, are examples of weak acids.

When a nucleus combines with four atoms of oxygen, a *monobasic acid*, *sel monabasique*, is formed(a). In this case one atom of hydrogen of the nucleus must acquire the property of being substituted by one atom of metal.

Examples of Monobasic Acids.—Formic acid, $C_2 H_2 + O_4$, and its metallic salt, $C_2 HM + O_4$; acetic acid, $C_4 H_4 + O_4$, and its metallic salt, $C_4 H_3 M + O_4$, &c.

When six atoms of oxygen deposit themselves on a nucleus, a *bibasic acid*, *sel bibasique*, is formed. In this case two atoms of hydrogen must acquire the property of being replaced by two atoms of metal.

Examples.—Oxalic acid, $C_4 H_2 O_2 + O_6$,—metallic salt, $C_4 M_2 O_2 + O_6$, its nucleus being ethene, $C_4 H_4$; phthalic acid, $C_{16} H_6 O_2 + O_6$,—metallic salt, $C_{16} H_4 M_2 O_2 + O_6$, and its nucleus, phthalene, $C_{16} H_8$.

Laurent looks on tribasic and polybasic acids as mere combinations of two or more simple acids.

Two atoms of hydrogen and two atoms of oxygen can unite with the nucleus, but not exactly as two atoms of water, but in some other way. *Alcohols*, in a general sense, are thus formed.

When oxygen or chlorine increases to too great a degree, either in the nucleus or envelope, the compound readily decomposes into two nuclei, which only contain, each, one-half of the number of carbon atoms of the original nucleus, and therefore belong to a lower series of organic bodies.

Thus by the action of a solution of potash chloral (of the ethene series), $C_4 HCl_3 + O_2$ is decomposed, under the influence of $2HO$, into formic acid, $C_2 H_2 + O_4$, and chloroform, $C_2 HCl + Cl_2$, both

(a) As the acid differs from its metallic salt by containing one atom of hydrogen instead of one of a metal, Laurent considers the acid itself as a salt.

which belong to the series of the fundamental nucleus, palene, $C_2 H_2$.

Most of the fundamental and derivative nuclei belonging to the most usual organic types are known (that is isolated), but there are still many fundamental nuclei, whose existence is hypothetically deduced from derivative nuclei; and some fundamental and derivative are assumed from the existence of a series of compounds, which can be best understood by considering them as combinations of an unknown nucleus with other substances. Thus, for instance, the existence of palene, $C_2 H_2$, is not yet firmly established, but it is assumed to exist, because many compounds, such as marsh gas, $C_2 H_2 + H_2$; formic acid, $C_2 H_2 + O_4$; methylic ether, $C_2 H_2 + HO$, &c., are thus best classified.

The similar types of the same series have a certain physical and chemical resemblance (including also isomorphism), even when the nucleus of one contains only carbon and hydrogen, while that of the other may contain more or less chlorine, &c. Thus the four combinations of the phaene series, $C_{12} H_6 + O_2$, $C_{12} H_4 Cl_2 + O_2$, $C_{12} H_3 Cl_3 + O_2$, and $C_{12} HCl_5 + O_2$, all readily melt and volatilize without change; are scarcely soluble in water, but are very soluble in alcohol and ether. But combinations of the same series which belong to different types, even when the number of atoms in both differ very little, exhibit very important differences; thus, for example, indigo blue, $C_{16} H_5 NO_2$, and indigo white, $C_{16} H_5 NO_2 + H$.

Gerhardt's Nomenclature(a).—Laurent has founded a classification on this theory which has not been much employed except with the compounds discovered by himself. It forms the basis upon which Gerhardt has constructed the classification which he has so fully developed in his *Précis de Chimie organique*.

Gerhardt considers organic substances as a *vast scale*,—the two extremities of which are occupied, the one at the summit by the cerebral substance, albumen, fibrine, and other bodies still more complex; the other at the bottom, by carbonic acid, water, ammonia, &c.

When we oxidize by any means part of the hydrogen and carbon of a body, we *descend* this scale, that is, we produce a body of a simpler constitution; but when we subject a body to the process of reduction we *ascend the scale*, that is, we produce a body of a more complex composition. These considerations, Gerhardt says, lead to an exact idea of the principles upon which we should classify organic substances, without the aid of hypothesis, or without exceeding the limits of experience.

He considers that the equivalent or atomic weights of the elements have not hitherto been rightly determined, because the relation of their volumes in the gaseous state has not been sufficiently attended to.

(a) *Precis de Chimie Organique*, tom. i. and ii., Paris, 1844 and 1845; and an excellent abstract by T. S. Hunt, in Silliman's American Journal, Nos. 10 and 11, August and September, 1847.

Considering, with Berzelius, that equal volumes of the simpler gases contain an equal number of atoms, he makes the formula for water H_2O . On the same ground he considers with Berzelius that the atomic weights of iodine, bromine, chlorine, fluorine, and nitrogen, are only half what are given in English works on chemistry. But he goes much further than Berzelius by taking the atomic weights of most of the metals at half what they are at present considered to be. On this view oxide of mercury is not HgO , but Hg_2O (the suboxide being Hg_4O); oxide of copper is not CuO , but Cu_2O (the dinoxide being Cu_4O); oxide of iron is not FeO , but Fe_2O ; and so on.

Gerhardt's equivalents can be converted into the ordinary ones either (1) by leaving the equivalents of O, C, S, Se, as they are usually taken, and halving those of H, I, Br, Cl, F, N, and the metals; or (2) we can leave the latter as they are usually taken, and double those of O, C, S, Se, thus:

	O.	C.	S.	Se.	H.	P.	I.	Br.	Cl.	N.	K.	As.
According to (1), . .	8	6	16	40	0·5	15·7	63	39·2	17·7	7	19·6	37·5
According to (2), . . .	16	12	32	80	1	31·4	126	78·4	35·4	14	39·2	75
Ordinary equivalents, .	8	6	16	40	1	31·4	126	78·4	35·4	14	39·2	75

His formulæ can be converted into the ordinary ones by leaving the number expressing the atoms of hydrogen and the other bodies in the series given above unchanged, and doubling the numbers expressing the atoms of O, C, S, and Se. Thus, Gerhardt's CN is C_2N ; $\text{C}_2\text{H}_4\text{O}_2$ is $\text{C}_4\text{H}_4\text{O}_4$; $\text{C}_8\text{H}_5\text{NO}$ is $\text{C}_{16}\text{H}_5\text{NO}_2$, &c. 1 equivalent of water, according to Gerhardt, is $\text{H}_2\text{O} = 2\text{HO}$, and therefore not 9 but 18: in the same manner 1 equivalent of carbonic acid, $\text{CO}_2 = 2\text{CO}_2$, is not 22 but 44; and 1 equivalent of sulphuric acid, $\text{SH}_2\text{O}_4 = 2(\text{HO}, \text{SO}_3)$, is not 49 but 98, &c.

If we examine organic compounds, we will find that those which correspond in their chemical relations generally observe the same proportions between their constituent elements. Thus, in the alcohols, wood spirit, $\text{CH}^4\text{O}(\alpha)$; spirit of wine, $\text{C}_2\text{H}_6\text{O}$; oil of potato-spirit, $\text{C}_5\text{H}_{12}\text{O}$; and ethal, $\text{C}_{16}\text{H}_{34}\text{O}$: if the single equivalent of oxygen which each contains were combined with two equivalents of hydrogen to form water, the residue of carbon and hydrogen in each would be in the proportion of 1 : 2. By oxidizing agents the alcohols lose two equivalents of hydrogen, and gain one of oxygen, giving rise to formic, acetic, valerianic, and ethalic acids, respectively, in which the carbon and hydrogen are still in the proportion of 1 : 2, and in all the transformations of these bodies this proportion remains constant. Hence, if we know the composition of any derivative of spirits of wine, we can also foresee that of a similar product derived from another alcohol.

(a) In speaking of Gerhardt's theory I shall always use his own formulæ.

Substances like those mentioned, resembling one another in their chemical characters on account of similarity of constitution, are denominated *homologues*; while those which resemble one another merely in their physical properties are called *analogues*. Thus, for instance, wood spirit and acetone resemble one another in being inflammable, volatile, and soluble in water; but this resemblance is only analogous: but if we compare wood spirit with spirit of wine, or oil of potato-spirit, we find that in their constitutions, and in the products of their decomposition, they are closely related, and are, therefore, homologues.

In homologous bodies the carbon and hydrogen may vary in their proportions, but the oxygen and nitrogen are always constant.

All carburetted hydrogens (analogous to Laurent's nuclei) are designated in general formulæ by R; bodies like alcohol, containing one equivalent of oxygen, by RO; those containing two of oxygen, by RO₂; and those containing nitrogen, sulphur, &c., in a similar manner.

Homologous bodies must not only be represented by the same general formula, but the ratio between the proportions of carbon and hydrogen must be also the same. Thus, formic acid, CH₂ O₂; acetic acid, C₂ H₄ O₂; valerianic acid, C₅ H₁₀ O₂; and ethalic acid, C₁₆ H₃₂ O₂; are expressed by the general formula, RO₂; R representing for each of them a compound in which the carbon and hydrogen are in the proportion of 1 : 2. These bodies are, therefore, homologous. This is the simplest ratio, and is, therefore, selected as the standard; but is not the most frequent. The hydrogen is in general less than 2, and when it exceeds it, the excess is seldom more than two equivalents.

When homologous bodies are decomposed into other homologues they lose or gain the same number of atoms of carbonic acid, water, oxygen, &c. When converted into hydrocarbons they lose one equivalent of water; and in the formation of acids they have one atom of hydrogen substituted by one of oxygen. Hence, a geometrical ratio between the elements of homologous substances is not necessary; bodies having the following proportions of C and H may be homologues:

C	H	C	H
1	4 = 1 : 2 + 2	4	4 = 4 : 8 - 4
2	4 = 2 : 4 + 2	6	8 = 6 : 12 - 4
5	12 = 5 : 10 + 2	8	12 = 8 : 16 - 4
16	34 = 16 : 32 + 2	16	28 = 16 : 32 - 4

And the same principle applies to any other proportions of these elements. In the first column each compound, by losing two equivalents of hydrogen, is reduced to the standard ratio of 1 : 2; and in the second the addition of 4 is required.

Gerhardt expresses the ratio of 1 : 2 by the symbol R, and when the proportion of hydrogen is greater, the number of equivalents is

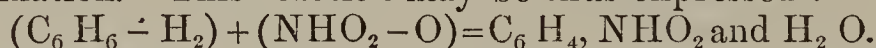
expressed by an exponent preceded by the sign *plus* (+); and when the ratio is less, by a similar exponent with the sign *minus* (-). Thus wood spirit, $\text{CH}_4 \text{O}$; alcohol, $\text{C}_2 \text{H}_6 \text{O}$; oil of potato spirit, $\text{C}_5 \text{H}_{12} \text{O}$; and ethal, $\text{C}_{16} \text{H}_{34} \text{O}$; are homologues of the form $\text{R}^{+2} \text{O}$; and the acids derived from them by the removal of two equivalents, and the addition of one of oxygen, are expressed by the formula, RO_2 . Oxalic acid, $\text{C}_2 \text{H}_2 \text{O}_4$; succinic acid, $\text{C}_4 \text{H}_6 \text{O}_4$; pimelic acid, $\text{C}_7 \text{H}_{12} \text{O}_4$; and suberic acid, $\text{C}_8 \text{H}_{14} \text{O}_4$; are homologues of the form $\text{R}^{-2} \text{O}_4$; oxamide, $\text{C}_2 \text{H}_4 \text{N}_2 \text{O}_2$, and succinamide, $\text{C}_4 \text{H}_8 \text{N}_2 \text{O}_2$, are homologues of the form $\text{RN}_2 \text{O}_2$. Cinnamene, $\text{C}_8 \text{H}_8$, and cedrene, $\text{C}_{16} \text{H}_{24}$, are homologues of the form R^{-3} , &c. If we want to determine whether two bodies having the same amount of oxygen can be homologues, we assume a number of equivalents of hydrogen equal to twice that of the carbon (that is, the proportion of 1:2), and see whether the excess or deficiency of hydrogen is the same in both, and consequently whether they can be expressed by the same general formula.

Gerhardt classes homologous bodies, according to their carbon, in a tabular form. Those containing the same proportion of carbon constitute a family, which is designated by the number of atoms of that element. Each family is divided into the carburets of hydrogen and those containing oxygen, nitrogen, &c., so that we have R , RO_2 , RN , &c. These divisions are found on the left of the table, and at the top are marked, at the head of each column, the respective proportions of hydrogen. This may be better understood by the following view of the first and second families.

Family.	General Formula.	R^{+2} .	R .	R^{-2} .
2	R	$\text{C}_2 \text{H}_6$, acetene.	$\text{C}_2 \text{H}_4$, olefiant gas.	$\text{C}_2 \text{H}_2 \text{O}_4$, oxalic acid.
	RO	$\text{C}_2 \text{H}_6 \text{O}$, (a) alcohol. (b) methylic ether.	$\text{C}_2 \text{H}_4$, aldehyde.	
	RO_2$	. . . . .	\text{C}_2 \text{H}_4 \text{O}_2$, acetic acid.
	RO_4	. . . . .	. . . . .
1	R	CH_4 , marsh gas.	CO , carbonic oxide. CO_2 , carbonic acid.
	RO	$\text{CH}_4 \text{O}$, wood spirit.	
	RO_2$	. . . . .	\text{CH}_2 \text{O}_2$, formic acid.

By this arrangement we can at once give a new substance a place, and determine its relation to other compounds. Those bodies which are homologues are always found in the same column; and hence, by looking over the table, we can at once see in what families homologues of any particular form exist, and how these may be formed from other bodies of the same family. Still it cannot be denied that it is rather too artificial, and dependent on accidental properties. Gerhardt also adopts the view that acids are salts of hydrogen, a metal being substituted for this hydrogen in other salts.

He divides the phenomena of metalepsis, or substitution, into two classes,—those bodies in which hydrogen is replaced by chlorine, bromine, or iodine, and those where oxygen is exchanged for sulphur, selenium, &c. These substitutions take place equivalent for equivalent; and as one of oxygen, according to Gerhardt, corresponds to two of hydrogen, oxygen cannot replace hydrogen like chlorine. This view is opposed to the views of Laurent and Dumas, and to many facts, and it is one of the strongest objections to Gerhardt's view of the equivalents of bodies. But in order to explain the cases where oxygen, or NO_4 (NO_2 Gerhardt), &c., appears to replace hydrogen, in accordance with his theory, he has proposed an hypothesis which he calls *accouplement*, or the substitution of residues, to distinguish it from ordinary metalepsis. When nitric acid acts on some organic substance, water and a new body containing the elements of the nitric acid are formed; thus, benzine, C_6H_6 , with nitric acid, NHO_3 , form an equivalent of water, and the new body, $\text{C}_6\text{H}_5\text{NO}_4$. In this compound, NO_2 has been supposed to replace one equivalent of hydrogen; but according to Gerhardt, the hydrogen of one of the bodies unites with the hydrogen of the other, to form water, and the remaining elements are left in combination. This reaction may be thus expressed:—



The residue NHO_2 , thus replacing the H_2 in the compound. Such compounds he calls *coupled bodies*—*corps copulés*.

Another class of combinations are those formed by the direct union of two bodies. Such, for instance, is benzoine, which is a compound of two atoms of oil of bitter almonds. Laurent designates such bodies *syndesmides*.

To suit these views of the composition of bodies, he has made corresponding changes in the nomenclature. He has applied the binomial nomenclature of Linnæus in rather a novel way certainly. He considers one substance as the type of a *genus*, and the bodies derived from it by substitution as the *species*. The type itself is that which contains only the organic elements, and is called the *normal species*. Thus, for example:

GENUS ACETATE RO_2 .

<i>Species.</i>	<i>Old Name.</i>	
Normal acetate.	Acetic acid	$\text{C}_2\text{H}_4\text{O}_2$.
Potassic acetate.	Acetate of potash.	$\text{C}_2(\text{H}_3\text{K})\text{O}_2$.
Argentiac acetate.	Acetate of silver.	$\text{C}_2(\text{H}_3\text{Ag})\text{O}_2$.
Trichlorinized (acetateacé- tate trichloré).	Chloro-acetic acid.	$\text{C}_2\text{Cl}_3\text{H}\text{O}_2$.
Trichloro-potassic acetate (acétate trichloro-potas- sique).	Chloro-acetate of Potash,	$\text{C}_2(\text{Cl}_3\text{K})\text{O}_2$.
Trichloro-argentiac acetate (acétate trichloro argen- tique).	Chloro-acetate of silver,	$\text{C}_2(\text{Cl}_3\text{Ag})\text{O}_2$.

Saline compounds terminate in *ate* and *uret*; the hydrocarbons in *ene*; oxygenized volatile liquids, like the alcohols and essential oils, in *ol*; and the alkaloids in *ine*.

Gerhardt looks upon acids, in the same manner with Laurent, as compounds which can have one or more atoms of hydrogen replaced by a metal, and which unite with alcohols to form ethers with the separation of the elements of water. Gerhardt, however, considers that there are also tribasic acids, which Laurent is disposed to look upon as combinations of simpler ones. The terms *bibasic*, and *tribasic*, are often applied to the combinations of neutral monobasic salts with certain metallic oxides: acetate of lead, for instance, unites with two equivalents of oxide of lead to form the compound known as *tribisic acetate*; in this but one equivalent of hydrogen is substituted by the metal, and the two equivalents of oxide are but feebly united, performing, perhaps, a function analogous to water of crystallization. Gerhardt has proposed a very convenient name for such compounds, namely, *surbasic*, and the compound just mentioned, which is $C_2 (H_3 Pb) O_2 + Pb_2O$, would be *bisurbasic acetate of lead*.

Oxides of the formula M_2O produce neutral salts with acids, water being at the same time eliminated. Oxides of the formula $M_4 O_3$, as the sesquioxide of iron, unite in the same manner, with the separation of the elements of water, but their three equivalents of oxygen form water with the replaceable hydrogen of six equivalents of the acid, and the residue which replaces this is only equal to four equivalents thus, $6C_2 H_4 O_2 + Fe_4 O_3 = 3H_2 O + C_{12} H_{18} Fe_2 O_{12}$. If we would represent this substitution as equivalent $Fe_{\frac{2}{3}}$, written $Fe^\beta = H$, then the peracetate of iron is $C_2 H_3 Fe^\beta O_2$.

I have already alluded to Gerhardt's idea of substitution of residues or accouplement. Coupled bodies are compounds formed by the union of an organic substance with an acid, with the separation of water, in which neither of the components can be recognised. Those formed by a monobasic acid are neutral; but if the acid polybasic and combines with but one equivalent of the organic substance, the result is a *coupled acid*. Sulphuric acid combines with an immense number of substances in this way.

The baryta salts of all these acids are soluble in water and frequently in alcohol. The basic power of a coupled acid is, according to Gerhardt, equal to the sum of the powers of its component bodies, less one, or, in other words, one atom of the coupled acid saturates one atom of base less than its components, when separate, would saturate. According to this view, sulphuric, carbonic, and sulphurous acids, should be looked upon as bibasic acids.

Gerhardt says that nitric acid cannot form a coupled acid with neutral bodies, because it is monobasic, a fact which is contradicted by the nitro-leucic acid, and nitro-glycocolic acids, which are both monobasic. But its action upon monobasic acids yields a series of azotized acids, which are themselves monobasic.

Want of space alone prevents me from noticing many other remarkable views of his; for the same reason I am compelled to leave

unnoticed the classification of genera according to their types and chemical functions. Those who require more information than they can glean from such a short and imperfect notice as this is, will find this remarkable work worthy of a careful perusal. These views of Laurent, Dumas, Gerhardt, and Gmelin, mark an era in chemistry; as they form the first real attempt made since the days of the great Berthollet, to bring chemical phenomena, more especially organic, within the limits of ordinary mechanical laws; and the time is not far distant, I hope, when it will be possible to rank chemistry also among the mathematical sciences.

To those who may wish for more information on the subject, a few references to the original memoirs may not be unacceptable: Dumas, Substitution Theory(*a*); Substitution and Polybasic Acids(*b*); Theory of Types(*c*): Dumas and Stas(*d*): Dumas and Piria on Types(*e*): Dumas, Substitution Theory(*f*): Gerhardt(*g*).

Laurent,—Theory of Types(*h*); Nomenclature(*i*); Oxidation and Deoxidation of Nuclei(*k*); Substitution by Chlorine(*l*); New Development of the Nucleus Theory(*m*).

Gmelin's new Nomenclature(*n*).—Gmelin has proposed a new nomenclature, which he wishes to have submitted to the criticism of chemists. In his opinion the name of a chemical substance should not only convey the nature of its constituents, but also the number of atoms and their mode of combination. In fact it should be a rational chemical formula expressed in a word.

To effect this object, without making the name too long, he proposes that each element should be expressed by a word of one syllable, and the number of atoms (as Laurent has already done) indicated by a change in the vowels; thus,

<i>a</i>	<i>e</i>	<i>i</i>	<i>o</i>	<i>u</i>	<i>ai</i>	<i>aii</i>	<i>au</i>	<i>oe</i>	<i>ue</i>
1	2	3	4	5	6	7	8	9	0

The sounds of these diphthongs are very distinct in German, but not in English, so that there must be some change made in it to suit the pronunciation of each country.

The elements could receive the following names: O = ane; H = ale; C = ase; B = are; P = ape; S = afe; I = asche; Br. = ame; Cl = ake; Fl. = alfe; N = ate; K = pate; Na = nate; Ba = bare; Ca = care; Mg = talke; Al = talme; Pb = plambe; Fe = marte; Ag = targe; Pt = plate, &c.

(*a*) *Annales de Chimie et de Physique*, lvi. 139; lvii. 318; lviii. 14.

(*b*) *Comptes rendus*, 6, No. 24.

(*c*) *Annal. de Chim. Phys.*, lxx. 73; *Compt. Rend.*, x. 149.

(*d*) *Annal. de Chim.*, lxxiii. 113.

(*e*) *Nouveaux Annal. de Chim. et Phys.*, v. 353.

(*f*) *Rev. Scientifique*, i. 150.

(*g*) *Précis de Chimie Organique*, tom. i. ii. Paris, 1844, 1845.

(*h*) *Annal. de Chim. Phys.*, lxxii. 409.

(*i*) *Nov. Annal. de Chim. Phys.*, iii. 463.

(*k*) *Compt. rend.*, xvi. 856. (*l*) *Rev. Scientif.*, ix. 5.

(*m*) *Compt. rend.*, xvii. 311; xix. 1089; also *Rev. Scientif.*, xvi. 163, 395.

(*n*) *Handbuch der Chemie vierte Auflage*, bd. iv. 131.

cleus by substitution, or which form an envelope by depositing themselves on it, seldom exceed eight, and can, therefore, be easily expressed by vowels. Derivative nuclei, which have a great number of substituted atoms, as, for instance, the varieties of sugar, should probably also receive a particular name. The nuclei, in order to be readily distinguished in the name of a compound, should commence with a consonant, and be terminated by a consonant followed by a short *e*. In order to distinguish nuclei from metals, *a* and *e* should not be included in their names, as the metals very seldom enter into combination in more than one or two atoms; they would, therefore, always occur with an *a* or *e*, while nuclei never enter into combination in more than one atom, and therefore the vowel or diphthong in their names would never change; the only exception being some of the bodies termed by Laurent *homodesmids*. Thus stilbene, $C_{28}H_{12}$, is considered as a compound of two atoms of benzene; and benzoine, $C_{28}H_{12}O_4$, a compound of two atoms of oil of bitter almonds.

The present names of nuclei should be more or less changed, and in the new names the etymology must have a very subordinate value. Thus, palene, C_2H_2 , should be changed into forme; ethene, C_4H_4 , into vine; butyrene into bute; amylene, or mylene, $C_{10}H_{10}$, into myle; phaene, or phaenene, $C_{12}H_6$, into fune; benzene, $C_{14}H_6$, into bunze; salene, $C_{14}H_8$, into tole (from balsam of tolu); cinnamene, or styrol, $C_{16}H_8$, into styre; &c. &c.

When a fundamental nucleus changes into a derivative one, the final *e* is dropped, and the name of the substance which is substituted for it, with the vowel expressing the number of atoms, added to it. The derivative nucleus, C_4H_3O , of vine, which is hypothetically assumed to exist in acetic acid, is thus vinan; and the derivative nuclei produced from vine by the action of chlorine, C_4H_3Cl ; $C_4H_2Cl_2$; C_4HCl_3 ; C_4Cl_4 , are respectively vinak, vinek, vinik, and vinok. Indigo, considered as a derivative nucleus of styre, $C_{16}H_8$, is styraten. The accent should always be on the syllable expressing the nucleus.

As hydrogen is also substituted by NO_2 , NH_2 , and probably also by NH , and also by SO_2 , it would be of advantage to express them by the simple syllable *art* (from nitro), *amt* (from amide), and *aft*. Thus, nitrobenzide, $C_{12}H_4X_2$, would be *funert*; phtalamide, $C_{16}H_3AdO_4$, would be *styramton*; sulphobenzide, $C_{12}H_4(SO_2)$, would be *funaft*.

If the nuclei have envelopes, the elements of the envelope are placed before those of the nucleus, but the vowel is placed before the consonant, so as to distinguish the envelope from the nucleus; thus, instead of *an*, *na*; instead of *al*, *la*, &c. Thus, marsh gas, C_2H_2 , H_2 , is *leforme*; aniline, $C_{12}H_5N$, H_2 , is *lefunat*; aldehyde, C_4H_4 , O_2 , or C_4H_3O , HO , is *nevine*, or *lanavinan*; acetic acid, C_4H_4 , O_4 , or C_4H_3 , O , HO_3 , is *novine* or *lanivinan*; mercaptan, C_4H_4 , H_2S_2 , or C_4H_3S , H_3S , is *lefevine*, or *lifavinaf*.

Relation between the Chemical Equivalents of Bodies and the Density of their Vapours(a).—Mariotte discovered the first simple law relating to the permanent gases,—that the density is directly as the pressure. Gay-Lussac discovered another law,—that all gases expand equally by the addition of equal increments of heat; that is, that the coefficient of expansion is the same for all gases and all temperatures; and a third, that gases combine chemically in the proportion of simple volumes.

The researches of Magnus and Regnault have shewn that the equality of the coefficient of expansion is only approximately true when the gases are in a perfectly aeriform state, and that even at ordinary temperatures a marked difference in their rate of expansion occurs, and that the coefficients change with increase of temperature in the case of the denser gases.

But these variations from the laws of Gay-Lussac are much greater with vapours, particularly as they approach the point of greatest density. What has led principally to the investigation of the tension of the vapours of so many organic liquids was the idea that the law of combination by volumes could also be applied to liquids and solids. The experiments of Bineau on the vapours of acetic, formic, and sulphuric acids, made with reference to this point, are extremely important.

The apparatus which he employed consisted of a balloon, to which a tube eight decimeters long was soldered. This was inserted by means of a cork, with the balloon uppermost, into the bell-glass of an air pump. As soon as the air was exhausted as much as possible, the tube was pushed through the cork, until the orifice dipped into a deep vessel of mercury placed in the bell-glass. When the air was again admitted, the quicksilver rose in the tube to a height approaching that of the barometer, in proportion as the exhaustion was complete. The apparatus was then taken out of the bell-glass, and the height of the quicksilver compared with that of a barometer which dipped into the same vessel of mercury. A quantity of the liquid to be examined, the weight of which was accurately determined, and which was always less than what would be sufficient to fully fill the balloon with vapour, was put into a glass bulb, and allowed to rise through the mercury into the balloon, and care taken to completely volatilize it. The height of the quicksilver and the temperature were again taken, and the volume which the mixture of air and vapour occupied determined. This differed so little from that of the air alone, that it may be considered as the same.

If we call this volume V , the tension of the air f , that of the mixture f' , the corresponding temperatures t and t' , and the apparent expansion of an unit volume of air under small pressure

(a) Bineau, *Compt. rend.* tom. xxiii. p. 414; also *Pogg. Annal.* lxx. p. 172.

(0.00363) a , and the quantity of liquid P , the density of the vapour will be thus expressed :

$$D = \frac{P}{17.1 V \left(\frac{f'}{1+a.t'} - \frac{f}{1+a.t} \right)}$$

in which a milligramme is the unit of weight and the millimetre the unit of length.

The volume of air in different experiments remained nearly constant = 5^{ht}.52. The tension of the air at 0° $\frac{f}{1+a.t}$ had a constant value = 10.64. But the value $\frac{f'}{1+a.t'}$ should, on the other hand, vary with the temperature, if the vapour did not follow the laws of Mariotte and Gay-Lussac.

Bineau found for acetic acid, by using eighty-four milligrammes :

Temperature.	$\frac{f'}{1+a.t'}$	$\frac{f'}{1+a.t'} - \frac{f}{1+a.t}$	Densities.	Tension of Vapour.
12°	12.98	2.34	3.80	2.44
19°	13.07	2.43	3.66	2.60
22°	13.14	2.50	3.56	2.70

The greatest tension of the vapour of acetic acid is 7.7 millim. at 15°, 14.5 millim. at 22°, 23 millim. at 32°.

These experiments shew, first, that the vapour of acetic acid, even under such pressures as are too weak to convert it into the liquid state, expands and contracts from 2 to 2.5 times as much as air; and second, that the vapour of acetic acid *does not by any means follow the law of Mariotte*. Its density, compared with that of atmospheric air, increases with the pressure, if the temperature remains constant.

	At 20°.				At 30°.	
Tension,	4.0	5.6	8.5	10.0	6.0	10.7
Density,	3.74	3.77	3.88	3.96	3.6	3.73

Notwithstanding the enormous rarefaction of the vapour, on account of the very small pressure, the vapour of acetic acid maintains an anomalous density, which varies very much from that which should correspond to the high temperatures; thus it has a density of about 3.7 at from 15° to 20° under a pressure of 2.5 millimetres, while at 250°, under the pressure of an atmosphere, it only amounts to 2.1.

Cahours suspected that the density of the vapour of formic acid at high temperatures corresponds to one-fourth of the equivalent, a view which Bineau's experiments confirm.

The vapour of formic acid expands still more than that of acetic

acid, and at low temperatures it is nearly double what it is at 200° Cent.

He also found the vapour of sulphuric acid as anomalous as those just mentioned.

Relation between the specific Gravity of Fluids and their chemical Composition(a).—If we divide the atomic weight of a body by its specific gravity, we obtain a number which is called its *atomic or specific volume*, and which is supposed to express the relative volume which an atom of such a simple or compound body occupies. As we obtain the atomic volume by division of the atomic weight by the specific gravity, so we obtain the specific gravity by dividing the atomic weight by the atomic volume. Schröder was the first who broached the idea that (under certain restrictions) the specific volume of a compound was equal to the sum of the specific volumes of its constituents. This, if true, would be of great importance, as we could at once determine whether an assumed formula was correct, by calculating its specific gravity, and comparing it with the result obtained by experiment. Kopp, Schröder, and Löwig have each proposed a view of the subject. But as yet the only thing in which they agree is, that the atomic volume of fluids should be determined for corresponding temperatures, that is, for temperatures at which their vapours possess equal elasticities, and, consequently, most advantageously at their boiling point. But as the specific gravities of liquids are seldom determined for these points, the observed values are reduced by means of the numbers obtained by Gay-Lussac for the expansion of alcohol, or, what is the same thing, the atomic volumes of the constituents are corrected by means of them. Now, however, that the expansions of a great number of fluids have been determined, such coefficients of expansion may be employed for the respective substances instead of Gay-Lussac's numbers. In every other particular their views differ, but none of them has been sufficiently developed to be preferred to the other.

Kopp retains the usual atomic weights, and takes the atomic volumes at the boiling temperature, for $O = 6 \times 9.75$, of $H = 3 \times 9.75$, and of $C = 8 \times 9.75$. The agreement between the observed and calculated specific gravity is not always satisfactory. Schröder considers the atomic volumes of C, O, and H, at the boiling point, as equal, that is, for the double atoms, C_2 , O_2 , H_2 (the double atom of H is here twice that of Berzelius) = 10.379. This view is certainly recommended by its simplicity; nor is it any objection to it that Schröder, in reference to the atomic weight, writes the chemical formulæ of substances so as to express four volumes in the gaseous state, for if these are inadmissible, the theory only requires a simple condensation of 2:1. Besides this view gives the specific gravity with great accuracy, but, unfortunately, is not always applicable.

(a) Löwig, *Chemie der Organischen Verbindungen*, 2te Auflage, vol. ii. 1846.

Löwig assumes that the specific volumes of the different elements stand in close relation with their atomic weights. If we suppose the atomic weights of H, C, O, N, and Cl = 1, 6, 8, 14, and 36, their atomic volumes will be 1, 3, 4, 7, and 9, respectively; that is, a double or quadruple condensation compared to hydrogen. Taking the atomic weight of O = 100, he supposes the specific volume of H to be 44, that of C, 132, that of N, 308, and that of O, 176. But the volume of H in organic compounds can undergo a condensation of three-fourths, one-half, or one-fourth, by which the atomic volume decreases from 44 to 33, 22, and 11, respectively. The volume of the other element just mentioned can also undergo, in certain combinations besides these three, condensations of two-thirds and one-third. Thus, benzine, $C_{12}H_6$, has a specific gravity of 0.85, its atomic weight (O = 100, C = 75, H = 12.5) is 975; this divided by 0.85 = 1147, which is the specific volume calculated from the specific gravity. If we add twelve specific volumes of C condensed to two-thirds = 12×88 , and six specific volumes of H condensed to one-half = 6×22 , we obtain the sum 1188, which is also the specific volume of benzine. But this calculated specific volume is greater than that obtained from the observed specific gravity, and therefore yields a less specific gravity by division into the atomic weight, viz., only 0.821, than that obtained by experiment.

Löwig's observation, that the specific volume of a compound is not changed by the addition of O, would be extremely important if verified. Thus if we compare oil of turpentine, $C_{20}H_{16}$ (atomic weight, 136; sp. gr., 0.87; boiling point, 157° Cent.); camphor, $C_{20}H_{16}O_2$ (at. w., 152; sp. gr., 0.986; b. p., 204° Cent.); and camphoric acid, $C_{20}H_{16}O_8$ (at. w., 200; sp. gr., 1.194; b. p., 270° Cent.); we obtain the specific volume of oil of turpentine = 156; of camphor = 154; and of camphoric acid = 167; results which are favourable to his view. The great objection to Löwig's view is that the amount of the condensation which he assumes is to be chosen at hazard from several numbers.

Researches on the Dilatation of Liquids. By J. Isidore Pierre(a). — Pierre, in three long and valuable memoirs, has published the results of his experiments on the dilatation of water, sulphuret of carbon, alcohol, methylic alcohol, ether, chloride of ethyle, bromide of ethyle, iodide of ethyle, the chloride, bromide, and iodide of methyle, formic ether, acetate of oxide of methyle, acetic ether, butyrate of oxide of methyle, butyric ether, Cl_3P , Br_3P , Cl_3As , Cl_2Sn , Cl_2Ti , $ClSi$, $BrSi$, $C_4H_4Cl_2$, $C_4H_4Br_2$, and bromine; and from these experiments, for the numerical values of which I must refer to the original memoir, he has concluded, that the mean coefficient of absolute dilatation, and the true coefficient for those liquids, increase with the temperature; that the true coefficient always exceeds the mean coefficient at temperatures above the freezing point, and the reverse at those below; but it is not pos-

(a) *Annales de Chimie*, xix. p. 193; and xx. p. 5.

sible to establish any relation between the amount of the difference and the boiling point of the liquid.

The true coefficient always increases more rapidly than the mean coefficient, and for an interval of at least 132° Cent. the variation increases as 80 to 100. Hence the error of employing the mean coefficient in calculations, relative to the variation of the volume of liquids, or of employing a mean coefficient for small intervals.

Amylic, ethylic, and methylic alcohols follow the same law of contraction, if we take their boiling points as the points of departure, and compare them at intervals equidistant from those points. Bromide of ethyle and bromide of methyle follow the same law, as do also acetate of oxide of methyle and acetate of oxide of ethyle; and butyrate of oxide of methyle and butyrate of oxide of ethyle.

In fact, all analogous bodies, or what Gerhardt calls *homologues*, derived from ethylic, methylic, and probably also amylic alcohols, follow the same law of contraction, when compared at points equally distant from their respective boiling points.

Two liquids formed by the combination of a common element with isomorphous elements, starting from their boiling points, follow very different laws of contraction; or, in other words, two equal volumes of liquids similarly constituted, commencing from their boiling points, do not maintain their equality of volume. This difference is generally very great, but may be in some measure attributed to errors of observation.

The difference of contraction increases, and always in the same way for each group of liquids, as the temperature recedes from their boiling points. This difference sometimes becomes very great, as in the group formed by chloride and bromide of silicium. In fact, it sometimes amounts to one-half of the whole amount of contraction of one of the liquids.

The variation of the true coefficient of dilatation is five times greater for chloride of silicium than for the bromide.

In general the most dilatable liquid in a group has also the lowest boiling point. This does not, however, apply to liquids not belonging to the same group.

These results, although not leading as yet to any general law, shew how important the subject is; and Pierre expresses a hope that it will be taken up simultaneously by a great number of chemists and *physiciens*.

Researches on the specific Gravity, Expansion, and boiling Point of Liquids(a). By H. Kopp.—In all the investigations which have been hitherto made on the specific volume of bodies, the change produced by differences of temperature was overlooked. In fact, until very lately, the expansion of only three fluids, water, alcohol, and ether, had been determined. Kopp investigated eighteen substances, which he chose with reference to their bearing on his theory of atomic volumes. As the tension of the vapours of most bodies has not been determined as yet, he calculates the specific volume of each sub-

(a) Poggendorff's *Annalen*, lxxii. pp. 1, 223.

stance at its boiling point, that is, when the tension of the vapour is equal to 760 millimetres of the barometer: want of space alone precludes any notice of the mode in which he conducted his experiments, or of his tables of expansion. His results on dilatation agree very closely in general with those of Pierre, just noticed. The following table shews the specific gravities, boiling points, and specific volumes corrected for dilatation, which he has deduced from his experiments.

SUBSTANCES.	Boiling Point, Bar. 760 ^{mm} .	Mean Sp. Gr. at 0° Cent.	Specific Vo- lume at 0° Cent.	Specific Volume at Boiling Points of Liquids.	
Water,	100°	1	9 (H=1)	At 100 Cent.	9.387
Wood spirit, hydrate of oxide of methyle, $C_2 H_4 O_2$,	65.5°	0.81796	39.122	At 65.5°	42.388
Alcohol,	78.4°	0.80950	56.825	At 78.4°	62.222
Oil of potato spirit, hydrate of oxide of amyle, $C_{10} H_{12} O_2$	131.1°	0.8253	106.63	At 131.1°	123.28
Ether, $C_4 H_5 O$,	34.9°	0.73658	50.233	At 34.9°	53.099
Aldehyde, $C_4 H_4 O_2$,	20.8°	0.80092	54.936	At 20.8°	56.867
Acetone, $C_3 H_3 O$,	56.3°	0.81440	35.609	At 56.3°	38.680
Benzol or benzine, $C_{12} H_6$,	80.4°	0.89911	86.752	At 80.4°	96.037
Formic acid, $C_2 H_2 O_4$,	105.3°	1.2227	37.623	At 105.3°	41.830
Acetic acid, $C_4 H_4 O_4$,	117.3°	1.08005	55.554	At 117.3°	63.447
Hydrated butyric acid, $C_8 H_8 O_4$,	157.0°	0.98862	89.012	At 157°	106.74
Formiate of oxide of methyle, $C_4 H_4 O_4$,	33.4°	0.99840	60.097	At 33.4°	63.138
Formic ether, $C_6 H_6 O_4$,	54.9°	0.94474	78.328	At 54.9°	84.738
Acetate of oxide of methyle, $C_6 H_6 O_4$,	56.3°	0.95620	77.390	At 56.3°	83.872
Acetic ether, $C_8 H_8 O_4$,	74.3°	0.91046	96.654	At 74.3°	107.44
Butyrate of oxide of methyle, $C_{10} H_{10} O_4$,	95.9°	0.92098	110.75	At 95.9°	126.26
Butyric ether, $C_{12} H_{12} O_4$,	114.8°	0.90412	128.30	At 114.8°	149.73
Valerianate of oxide of methyle, $C_{12} H_{12} O_4$,	116.2°	0.901525	128.66	At 116.2°	149.58

These results agree very well with Kopp's theory of atomic volumes, and certainly form a very valuable contribution to science.

Heat developed by chemical Combination.—Abria(a) found, as the mean of five experiments, that one litre (at 0° Cent. Bar. 76 centm.) of dry hydrogen, by combination with one litre of dry chlorine gas, yielded 2151 calorific units (a calorific unit is the quantity of heat necessary to raise the temperature of one gramme of water by 1° Centigrade). The accuracy of this number was controlled by the following experiment. Chlorine gas saturated with moisture, water being also introduced into the space where the combustion took place, gave 3455 calorific units. The quantity of heat which one

(a) *L'Institut*, t. xiv. p. 635.

gramme of hydrochloric acid develops in its condensation by an excess of water was determined to be 392 units. According to this the 3.326 grammes of hydrochloric acid formed in the above experiment developed 1304 units. If we subtract this number from 3455, we obtain, for the quantity of heat developed by the dry gas, the number 2151, which corresponds with the mean of the direct experiment. As one litre of hydrogen gas, by its union with oxygen, supposing the water formed to remain in the state of vapour, yields 2629 units, we see that hydrogen, by its union with chlorine, develops only eight-tenths of the heat produced by burning it with oxygen.

Favre and Silbermann(*a*) have determined the heat developed by combustion. Many of their results agree with those obtained by Grassi. They have not described the apparatus used in these experiments, but it would appear to resemble in most particulars that employed by Grassi. Their results are the more valuable as they collected in every case the products of combustion, and weighed them.

Strongly ignited wood charcoal, over which a stream of chlorine was passed while in a state of ignition, was introduced in powder into the apparatus, and weighed. The apparatus was then filled with oxygen gas, and the charcoal set fire to, and towards the end of the combustion a stream of oxygen was passed over it, which carried the products of the combustion into the apparatus in which they were weighed. The CO_2 and CO obtained should always be equivalent to the carbon employed. Carbonic oxide is always formed by the burning of charcoal in oxygen, but in very varying proportions. It was, therefore, necessary to determine the quantity of heat which is developed by the burning of carbonic oxide. In order to burn it completely, it was mixed with half as much hydrogen gas, and burned with oxygen, and the heat developed by the burning of the hydrogen subtracted from the total heat. One gramme of carbonic acid yielded, as a mean of two experiments, 2432.7 calorific units.

Wood charcoal, completely burned, gave, as the mean of five experiments, 8086.2 calorific units, which gives 2480.6 as the number of calorific units developed by charcoal when converted into carbonic oxide.

In another series of experiments, in which they satisfied themselves of the complete absence of hydrogen, they obtained as the mean of thirteen experiments with charcoal, previously treated in different ways to remove hydrogen, &c., the number 8080.

From *sugar charcoal*, which contains no hydrogen, and is most difficult to burn, they obtained 8035 and 8039.

Gas coke,	8037 and 8058
Graphite from iron furnaces, mean of four experiments,	7762.25
Natural graphite, mean of four experiments,	7796.5
Diamond, mean of two experiments,	7824.5

(*a*) *Compt. rendus*, t. xx. xxi. xxii. xxiii. ; also Liebig's *Annalen*, lx. p. 165.

A much greater difference exists between these results than between those above given.

They have noticed a singular fact, for which as yet no explanation can be found, namely, that if carbon be burned in protoxide of nitrogen there is much less light produced; but on the other hand, 10841 calorific units are developed (mean of six experiments), or nearly 3000 more than when burned in oxygen.

Development of Heat by the burning of Marsh and Olefiant Gases.—The marsh gas prepared from acetate of soda, and perfectly pure, gave as a mean of three experiments, 13158·2 for one gramme of gas. If we subtract from this the quantity produced by the hydrogen (3446·2 calorific units for one gramme of gas), we obtain for one gramme of carbon in marsh gas, 5953·6 units,—a quantity much less than what is obtained from one gramme of carbon in a free state.

Olefiant gas gave, as the mean of two experiments, 8083·5 for one gramme of gas, or just as much as when free.

They also determined the amount of heat developed by the burning of a great number of bodies of the formula $(CH)_n$. They state that the results of different experiments with the same body seldom varied more than thirty calorific units. Among the other bodies examined by them the following may be given.

	Calorific Units.		Calorific Units.
Paramilène(carbo-hydro-		Ether,	9027
gen),	11491	Amylic ether,	10188
Amilène,	11393	Formic acid,	1712
Carbo-hydrogen (boiling		Acetic acid,	3405
point 180° Cent.), . .	11262	Butyric acid,	5623
Cetene,	11117	Valerianic acid,	6439
Metamilène,	10928	Ethalic acid,	9316
Wood spirit,	5304	Stearic acid,	9716
Spirit of wine,	7183	Acetone,	7320
Oil of potato spirit, . .	8959	Spermaceti,	10342
Ethal,	10600	Wax (bees'),	10500

They have also examined the following ethers:

	Calorific Units.		Calorific Units.
Formiate of oxide of me-		Butyrate of oxide of ethyle,	7096
thyle,	4197	Valerianate of oxide of me-	
Formic ether,	5187	thyle,	7376
Acetate of oxide of ethyle,	6300	Valerianate of oxide of	
„ „ methyle, 5342		ethyle,	1385
Butyrate of oxide of me-		Acetate of oxide of amyle,	7971
thyle,	6776	Valerianate of oxide of amyle	8544

Carbo-hydrogens of the formula $C_{10}H_8$.

Oil of turpentine, . . .	10874
Oil of lemons,	10959
Terebene,	10663

These results shew that if we subtract the oxygen together with the hydrogen necessary to convert it into water, the remaining elements do not develop as much heat as they would in a free state. The same is the case where two atoms of oxygen are considered to exist already in the form of water, with the exception of oil of potato spirit, as is also the case where we consider one atom of water to exist in the alcohols. This fact, according to Favre and Silbermann, contradicts the assumption of alcohols being hydrates of ethers. But marsh gas also gives less heat than its elements would when free.

Different isomeric bodies give different quantities of heat (?).

They examined sulphur in its different forms, such as the natural, crystallized from sulphuret of carbon, &c.; and, as the mean of thirteen experiments obtained the number 2232·6. In combination, as sulphuret of carbon, the mean of two experiments gave 3403·4. The elements, if free, would have given 3145·3, that is, when combined they yield 255·1 more than if both were free.

Specific and latent Heats of Bodies.—Favre and Silbermann have also made a series of investigations on this subject. In fact, in comparing the amount of heat developed by burning and other chemical actions, the difference in the specific heats of the bodies burned and of the products, as well as the latent heats of the gases formed, should be taken into account,—what has hitherto been but little attended to. The following are among the most important of the results :

SUBSTANCES.	Specific heat.	Latent heat.
Carbo-hydrogen $\left\{ \begin{array}{l} a \text{ boiling point, } 205^{\circ} \text{ cent.,} \\ b \text{ boiling point, } 250^{\circ} \text{ cent.,} \end{array} \right.$	0·49385	59·90
	0·49680	59·70
Wood spirit,	0·67127	263·86
Alcohol,	0·64490	208·31
Oil of potato spirit,	0·58728	121·37
Ethal,	0·51600	58·44
Sulphuric ether,	0·50342	91·11
Amylic ether,	0·52117	69·40
Formic acid,	0·60401	120·72
Acetic acid,	0·50822	101·91
Butyric acid,	0·41420	114·67
Valerianic acid,	0·47857	103·52
Acetic ether,	0·48344	105·80
Butyrate of oxide of methyle,	0·49176	87·33
Oil of turpentine,	0·46727	68·73
Terebene,	0·52409	67·21
Oil of lemons,	0·50233	70·02

The two first carbo-hydrogens have the same per cent. composition, but different equivalents, and their latent and specific heats are equal; as is also to a certain extent the case with the last three.

On the law of the latent Heat of Vapours. By C. C. Person(a)—Person considers that the preceding results of Favre and Silbermann on the latent and specific heat of bodies, confirms the law which he proposed in 1843, namely, that the latent heat of vapours is equal for substances which have the same boiling points. That is, that the heat which is required to volatilize substances under the same pressure, is equal when the resulting volumes are equal, and is greater or less according as the resulting volumes are greater or less. The apparent exceptions to this law which some of the substances in the preceding table present, he endeavours to explain by the results of Bineau and Cahours on the specific gravity of the vapour of acetic acid, &c.

Researches on the latent and specific Heat of Bodies. By C. C. Person.(b)—Person gives the following as his experiments on latent heat :—

SUBSTANCES.	Melting Point.	Latent Heat for Unit of Weight.
Tin,	235° Cent.	14·3
Bismuth,	270 „	12·4
Lead,	320 „	5·15
Zinc,	423 „	27·46
D'Arcet's alloy ₂ , Pb Sm ₂ Bi ₃ , . .	96 „	5·96
Fusible alloy, Pb Sn ₂ Bi,	145 „	7·63
Phosphorus,	44·2 „	4·71
Sulphur,	115 „	9·175
Nitrate of soda,	310·5 „	62·98
Nitrate of potash,	339 „	46·18
Phosphate of soda, PO ₅ 2Na O 24HO,	364 „	54·65
Chloride of calcium, Cl Cao + 6Ho, .	28·5 „	45·79
Yellow bees' wax,	62·0 „	43·51

If we examine this and the following table we see that the latent heats do not follow the order of the temperature, and that they are not, also, inversely as the atomic weights, as was supposed. But they are related to the fusing points and specific heats as

$$(160 + t) \delta = l,$$

where *t* is the fusing point, *l* the latent heat, and δ the difference

(a) *Compt. rendus*, t. xxiii. pp. 327, 524 ; also *Pogg. Annalen*, Bd. lxx. p. 386.
(b) *Compt. rend.*, t. xxiii. p. 162 ; also *Pogg. Annalen*, lxx. p. 300.

between the specific heats in the solid and liquid form. This relation may be expressed by the following proposition:—*To obtain the latent heat, the difference between the two specific heats must be multiplied by the number of degrees between -160° Cent. and the melting point.* The latent heats calculated by this formula agree pretty well with those observed.

The following are his results on specific heat:—

SUBSTANCES.	Temperatures between which the Specific Heat was observed.	Specific Heat.
Tin,	340° and 240° Cent.	0·061
Bismuth,	370 „ 280 „	0·035
Lead,	440 „ 340 „	0·039
D'Arcet's Alloy, PbSn_2B_3 ,	300 „ 136 „	0·036
Ditto,	136 „ 107 „	0·047
Ditto,	80 „ 14 „	0·060
Ditto,	50 „ 12 „	0·049
Fusible Alloy, PbSn_2Bi , .	330 „ 143 „	0·046
Phosphorus,	100 „ 50 „	0·212
Sulphur,	147 „ 120 „	0·235
Nitrate of soda,	430 „ 330 „	0·413
Nitrate of potash,	435 „ 350 „	0·344
Phosphate of soda,	79 „ 44 „	0·758
Ditto,	2 „ -20 „	0·454
Chloride of calcium,	127 „ 100 „	0·519
Ditto,	100 „ 60 „	0·628
Ditto,	60 „ 31 „	0·358
Ditto,	28 „ 4 „	0·647
Ditto,	2 „ -20 „	0·406
Yellow bees' wax,	102 „ 66 „	0·54
Ditto,	58 „ 42 „	0·72
Ditto,	42 „ 26 „	0·79
Ditto,	26 „ 6 „	0·52
Ditto,	2 „ -20 „	0·39
Ice,	0 „ -30 „	0·505

This table of the specific heats shews that they are nearly the same in the solid and liquid form for metals. The differences belong to the classes of those produced by change of temperature, and not by a change of the state of aggregation. This equality appears at first sight to upset his formula; but in reality it does not do so, if we consider the formula in its physical sense, and not as an empirical one.

(To be continued.)

MEDICAL MISCELLANY.

The Influenza.

[From the Records of the Dublin Medico-Philosophical Society, and the Molyneux Memoirs.]

IN a former Number we promised to give some extracts from the unpublished memoirs of the Medico-Philosophical Society of Dublin, of which we gave an account in our Preface two years ago. Upon the present occasion we have selected three very remarkable papers; the first, by Dr. Fleury, was read at the meeting of the Society held on the 1st February, 1776; his remarks apply in an extraordinary manner to the present epidemic of influenza. We may remark that Sir Thomas Molyneux has left on record, in the Philosophical Transactions for March, 1694, an interesting "Account of the late general Coughs and Colds," which prevailed in Dublin in 1693; from which we make the following extract:

"'Twas about the beginning of November last (1693), after a constant course of moderately warm weather for the season, upon some snow falling in the mountains and countries about the time, that of a sudden it grew extremely cold, and soon after succeeded some few days of very hard frost; whereupon rheums of all kinds, such as violent coughs that chiefly affected in the night, great defluxion of thin rheum at the nose and eyes, immoderate discharge of the saliva by spitting, hoarseness in the voice, sore throats, with some trouble in swallowing, wheezings, stuffings, and soreness in the breast, a dull heaviness, and stoppage in the head, with such like disorders, the usual effect of cold, seized great numbers of all sorts of people in Dublin."

In some of the persons so affected, the symptoms were more severe, and attended with somewhat more fever, headach, and intolerance of light. This epidemic, as it then appeared, was not attended with many fatal results, and in general the persons recovered without any treatment, the disease usually terminating in a critical diaphoresis. The duration of the distemper was, in the mild cases, from eight to ten days, and in the more obstinate ones, about a fortnight. So very general did this influenza rage, that few or none escaped; it spared neither rank, age, sex, nor condition. But Molyneux states it as his opinion, that it rather favoured the very old, who seldom were attacked with it. This disease ran its course in about a month, but it was not confined to Dublin alone; London and Oxford were visited by it. It appeared in London about a month sooner than in Ireland; and it likewise progressed through France, Holland, and Flanders.

In the concluding portion of this communication he gives some account of the "Short Fever that visited us in 1688;" and re-

marked, that immediately preceding it, a distemper attended by nasal defluxion (probably glanders) broke out among horses, especially those belonging to the army then encamped on the Curragh of Kildare, and from thence concluded that the like predisposing causes act on man and beast. Molyneux makes many sensible and judicious remarks upon the spread of these distempers, and ventures an observation that subsequent experience has proved correct in other diseases, but more especially in cholera, and that is, that "one may reasonably gather that *these spreading epidemic distempers take their progress from east to west.*"

He seems to have paid considerable attention to the constitution of the atmosphere previous to, and synchronous with, the spread of this influenza; for in a manuscript note, which he subsequently added to the communication which appeared in the Transactions, he gives a brief history of another universal cold that appeared in 1708, and was immediately preceded by a very sudden transition of atmospheric temperature from heat to cold.

When preparing the memoir on the mortality of Ireland, published in the Census of 1841, we learned many curious facts connected with this disease and its epidemic outbreaks in early times in this country. It is described in a medical manuscript of the fifteenth century under the name of *Fuacht* as well as *Slaodan*, and is mentioned in the Annals of the Four Masters as epidemic in Ireland in the fourteenth century. A disease, the symptoms of which answer to those of influenza, is also alluded to in our early Gaelic manuscripts, under the term *Creatan*, probably from *Creat*, the chest; in this latter signification it is generally applied to old age. John Dymok, in his "Treatise of Ireland," written about the year 1600, says that "the inhabitants, but especially the sojourners there, be very subject to *rheums, cattars, and fluxes.*"

Rutty witnessed an invasion of an universal epidemic catarrh in 1729 and again in 1737, when he says the weekly bill of mortality for Dublin rose to 144(*a*). "In November," says Rutty, "raged an universal epidemic catarrh, scarce sparing any one family, being attended with a cough, soreness of the breast, with some pain of the head and back, and a slight fever. It was common to us and London, Dorsetshire, &c., and proved fatal chiefly to old persons. It visited London before us, where, in the beginning of the month, there died nine hundred, and by November the 18th, a thousand, which is said to be more than have died in that city in the same space of time since the year 1665. In Dublin, December the 13th, the weekly bill amounted to one hundred and eighteen, near double the usual number. It is said that the like epidemic prevailed over great part of Europe this year."(*b*)

(*a*) We here beg to express our acknowledgment to Dr. C. Croker King for several of the Dublin bills of mortality with which he has presented us. If any of our friends, or the readers of this Journal, possess any of these printed bills, we crave permission to inspect them.

(*b*) "A Chronological History of the Weather and Seasons, and of the prevailing Diseases in Dublin," &c. 1770. Pages 17 and 63.

The years 1762 and 1782 were likewise memorable for its attacks. Many epizootic diseases of remarkable fatality have been recorded by authors as appearing contemporaneously with influenza and other epidemics; an instance of this kind is mentioned as having occurred in 1751 and another in 1764. Although influenza has been occasionally epidemic in Ireland for so long a period, no very violent outbreak of it occurred (or has been recorded) during the present century till 1833-4 and again in the years 1836-7; when, according to calculations made by Dr. Graves, "we may conclude that in Dublin alone more than 4000 people died of the influenza, not taking into account the greater number, who, although they got over the immediate attack of the epidemic, sank afterwards under various diseases of which influenza laid the foundation."—ED.

Observations on the Epidemic Cold of 1775. By J. C. FLEURY, M.D.(a)

[Read to the Dublin Medico-Philosophical Society, February, 1776.]

THE practice of physic in a great city affords, I think, more frequent opportunities of discovering the mistakes, or detecting the impositions, of many medical writers, than of making accurate observations upon epidemic diseases. By having seen the same disorder often cured under very different treatment, a sensible practitioner will learn, that certain effects which had been either ignorantly or deceitfully declared by these learned gentry to be almost insepa-

(a) Dr. Fleury was an eminent practitioner, particularly as an accoucheur, in Dublin, at the period to which his communication refers. In Dr. John Gilborne's "Medical Review, a Poem, being a Panegyric on the Faculty of Dublin; Physicians, Surgeons, and Apothecaries, marching in Procession to the Temple of Fame," 1775,—we meet the following verse:

"Fleury can symptoms of diseases tell,
Symptoms of symptoms can distinguish well;
Assist the labours of the groaning wife,
And saves the infant's and the mother's life."

The family of Fleury is of French extraction. After the Edict of Nantes, the Fleurys, being Huguenots, fled to Holland. The first Fleury came over as private chaplain to William III., and his wife maid of honour to Queen Mary. He was at the battle of the Boyne, and must have appeared there as part of the "Church militant," for his descendants long preserved the shot-marked gown he wore on the occasion. He afterwards settled, with other French refugees, at Portarlinton, where his son, Anthony Fleury, became minister to the French congregation of that place. One of Anthony's sons became Archdeacon of Waterford, and father of the present chaplain of the Molyneux Asylum; and the other, John Charles, the subject of this notice, attained, as we have stated, a high degree of eminence in his profession. On the 23rd November, 1784, he was elected a Licentiate of the King and Queen's College of Physicians, "without examination or expense." He was remarkably near-sighted. He is buried in the little grave-yard at Dundrum, near this city. On his tombstone we read, "Here lieth the body of John Charles Fleury, an eminent and ingenious physician, whose cheerfulness and social wit rendered him the delight of his friends. He died suddenly, on the 29th of September, 1797, aged 64, universally regretted."

rable from the exhibition of certain drugs, are often in strict justice to be ascribed to the salutary efforts of a good constitution. On the other hand, to institute accurate observations upon epidemics, there should be a free and frequent communication of sentiments among the medical practitioners; they should visit their patients more frequently than in general they do; and in order to give them the first opportunity of discovering the genuine nature of such diseases, surgeons and apothecaries should be precluded from prescribing(*a*). This will, I dare say, prove a sufficient apology for my having so very little to offer to your consideration upon this subject, and render it unnecessary to mention several circumstances which have deprived me of leisure to be more full upon the subject. As it seems, however, to have been the sense of this respectable Society, that the medical members thereof should at this time give in their observations upon the late epidemical cold which prevailed so universally amongst us, I shall cheerfully throw in my mite, in the hope and expectation of its stimulating others of greater abilities and more experience to do the subject more justice.

Of the weather I shall only say, that it was, for the season, extremely close, warm, and moist, accordingly this epidemic cold (which made its appearance here about the middle of last October) was less of an inflammatory nature, and affected the nervous system more sensibly than any I ever remember; that of May, 1762, was the first which occurred since I began the practice of physic in this city(*b*).

Exclusive of the common feverish symptoms, a great and sudden languor, dejection of spirits, and prostration of strength, was evident in most of the sick; many complained of a troublesome pain between the shoulders, a very uneasy sensation of heat from the top of the larynx down through the whole chest; a hard, dry, and frequent cough, in the night-time especially, was a very common symptom; a short, quick, and laborious breathing, a small, quick pulse, of a deceitful wiry hardness,—the last two symptoms occurred chiefly in those who were subject to asthma or winter coughs. In most families the servants and children were first attacked; in the latter the cough was almost incessant.

This epidemic cold set in at the tail, I may say, of a bilious fever, which had been prevalent here during the autumnal season; accordingly the inflammatory stage was, as from this combination and the state of the air might well be expected, but short, and soon yielded to moderate antiphlogistic treatment; indeed the great point on which the cure seemed principally to turn was, to carry the bilious saburra down through the great cloaca, without debilitating or irri-

(*a*) From this observation may be learned something of the state of surgery and pharmacy in Dublin seventy years ago.

(*b*) From the dates in this paper, the opinion which we published some years ago as to the periodicity of epidemics receives additional confirmation. See Irish Census for 1841; Medical Momoir, p. xxiii.

tating the nervous system. This eased the breathing, lessened the fever, and relieved the cough. Plentiful dilution too, and saline draughts, with *Ælix-paragoricum*, appeared to me to be amongst the best pectorals. In a city such as this, where the situation, as well as the manner of life of its inhabitants, often differ widely, and where the apothecary is so generally applied to in the first instance, no method can be laid down for the cure of any disease from which it will not at times be proper to deviate; I may venture, however, I think, to affirm that this epidemic did not require repeated bleeding; numbers recovered, and recovered speedily, who were not bled at all, and those who had been much evacuated that way were evidently the worse of it. Long abstinence from generous diet was injurious to some; their cough increased thereby, and their nights were rendered worse. Emetics, I think, in general, were not indicated.

ON the 8th of September, 1776, the following communication was made to the Society :

Remarks upon the Treatment of the Epidemic Cold of 1775. By DANIEL RAINEY, M. D. (a)

THIS trifle having been mislaid for several months, I thought it might prove of some use, and, therefore, give it to the Society in its present imperfect dress. Whilst the epidemic cold of last year affected such a number of the inhabitants of this city, it is not to be wondered at that it found its way into the House of Industry, an institution founded for the suppression of beggars and sturdy vagabonds, situated to the north-west of the city, in an elevated situation, with nothing but gardens and orchards in its rear. At this time the house contained above 367 paupers, of different ages, from 12 to 90, of different constitutions and temperaments, as may well be supposed among such a collection of people.

Above 200 of these were attacked with the prevailing disorder, and as it manifested *in general* no violent symptoms among the inhabitants at large,—except that several of the lower classes fell victims to their own folly in endeavouring to procure relief by making use of heated spirituous and malt liquors,—I was determined to seize such a favourable opportunity of acting the part of a mere spectator of the operation of nature; as I could act unrestrained by vulgar prejudices, where the patients had no idea that the physician did nothing for them if he did not drench their stomachs with nauseous medicines, I believe too often the case in general practice. And to my entire satisfaction, I found that warm, diluting, sub-acid drink, *nothing more than scalded buttermilk*, and confinement to

(a) Of Daniel Rainey we have not been able to collect much information; but he communicated several interesting papers to the Medico-Philosophical Society, some of which will appear in our future Numbers. He was not connected with the College of Physicians.

bed, brought the whole number through the complaint, without either the aid of medicine or even the lancet, and yet not one fell a sacrifice. In the Infirmary, which is set apart from the other buildings, in which was contained above fifty-one patients, medical and surgical, with several under a course of mercury, not one was affected, owing, as I at first supposed, to their living in smaller apartments, well warmed, and being unable to go about in the open air, but even this exemption could not be relied on as the cause of their escaping, when I observed that several occupied in the necessary business of the house, and through the whole day exposed to the action of the air, yet never were attacked with any of the symptoms. Nay, so healthy in other respects were the poor at this period, that the Governors bore testimony in the public papers that fewer died during the prevalence of this disorder than during the same space of time since the opening of the house. Some had it so very slightly,—nothing more than a sort of languor, with a trifling tickling cough,—that it was scarce necessary to confine them; others more severely, as with lassitude, and, as they called it, pain through their bones, very severe cough, headach, and running from the eyes. Those who were subject to the tussis senilis did not appear to suffer more than any of the rest.

A Case of Osteosarcoma of the superior Maxilla. With Illustrations.
By DAVID MACBRIDE, M. D.

[Communicated to the Medico-Philosophical Society, March, 1777.]

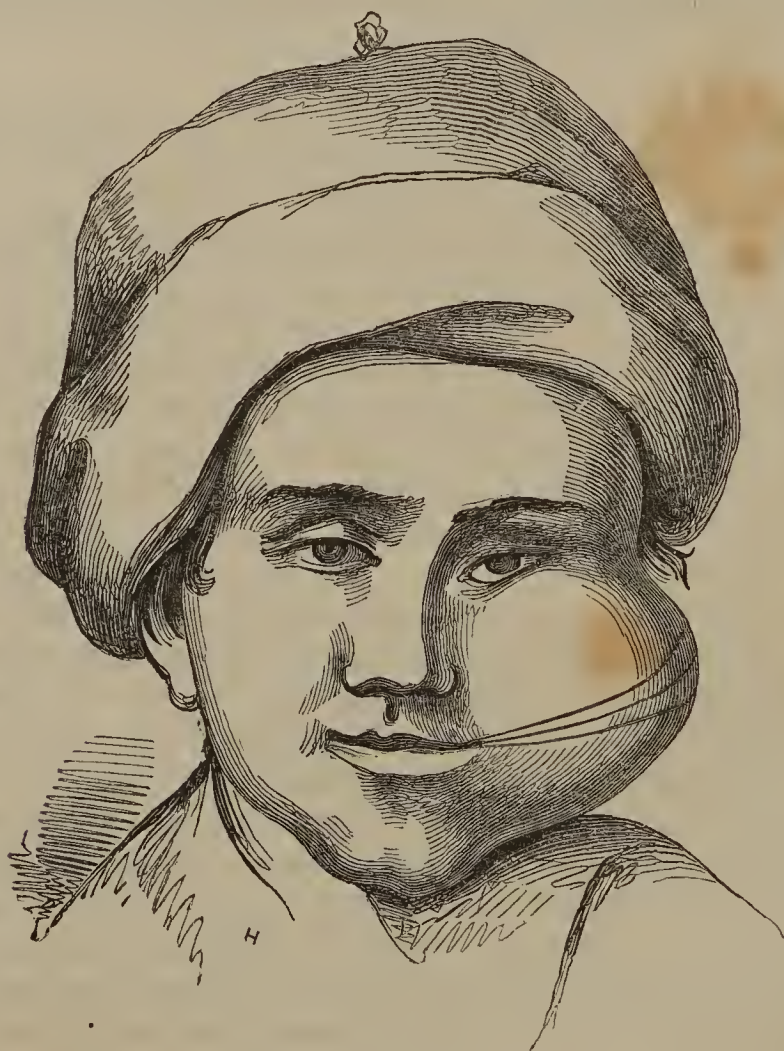
SOME days ago, in looking over some old papers, I chanced to meet with a few memorandums of a very remarkable case, which some of the present company may remember, and which is very well worth the preserving, for when a case is not only distinguished by uncommon circumstances of distress and danger, but also remarkable for the success with which it was treated, it has a double claim to our attention. In all these respects there will seldom be found one more deserving of being recorded than that of Mr. Wm. Dixon, an eminent notary public of this city, whose life was prolonged by a repetition of one of the most hazardous and severest operations in the annals of surgery.

Mr. Dixon was a middle-sized, thin man, who had all his lifetime enjoyed good health, until October, 1757, when he perceived his left cheek gradually swelling, though without any pain. It was not long before he perceived the swelling, not only to push out the cheek, but also to force down the arch of the palate. He tried a variety of applications, and consulted different gentlemen of eminence in the profession, but all without the least advantage, for, in spite of every thing that could be devised, the tumour went on in-

(a) For a memoir of Dr. Macbride see our sixth Number. The accompanying engravings are fac-similes of drawings made by Macbride.

creasing, both externally, so as almost to close up the left eye, and internally, so as to render swallowing extremely difficult. By the beginning of the year 1760 it had grown so large, and had pushed so far down into the fauces, that he could swallow no solid food, and even liquids could not be got down without the greatest difficulty, and in very small quantities, so that it became evident he must speedily perish, merely from want of food, if this obstacle to deglutition could not be removed.

Joined to all this distress, the tumour had also been of late subject to large bleedings, and one day in January some of the vessels burst in the fauces, and discharged near a quart of blood. In every other respect this poor man was in perfect health, and, having sufficient steadiness of mind to undergo any operation, he was exceedingly urgent to have one attempted for his relief. After several consultations with the most skilful and dexterous surgeons then in practice, it was determined to hazard an operation, and Mr. Boat, who was one of the boldest of his day, undertook to perform it, assisted by Messrs. Daunt and Cleghorn. The sketches which I now present you, and which I took from the life some years afterwards,



will give you an idea, not only of the tumour, but likewise of the operation. The operation was performed March 18, 1760; it was begun by slitting open the cheek from the corner of the mouth on

towards the ear, so far, that when the cheek was laid open the operator could conveniently come at the tumour to dissect it away. What vessels required tying were taken up, and then as much of the tumour cut away as left the eye perfectly undisturbed.



It was found of such a hard substance that they were obliged to use a strong pair of cutting forceps before they could get enough of it removed to leave the passage to the fauces sufficiently free; and lastly, the actual cautery was applied, not only to destroy as much as possible of the tumour, but with the hopes of preventing its future growth. He stood this amazingly severe operation with the greatest fortitude, and recovered in a very short space of time, but unfortunately not many weeks elapsed before he perceived the tumour again beginning to form itself. It went on increasing, so as to lay him under the necessity of having it cut a second time; and in the same way, by the same surgeons, on the 12th May, 1761. He recovered that operation as he did before, but in two years more it required to be cut a third time, on the 22nd of September, 1763.

After this he had almost three years' respite, but there was no possibility of preventing its always sprouting up; and accordingly he was obliged to submit to a fourth repetition of this severe operation, which was performed by Dr. Cleghorn, on the 26th of May, 1766, his friend Boat and he having had some falling out. I was

present at this last cutting, and it was immediately before the operation that I made the sketch which is annexed. He stood this, as he had done the three former cuttings, with amazing fortitude, and the wound healed up in the usual time. But very soon after this last operation his general health began to decline, and he fell into a jaundice, which ended in a dropsy, putting an end to all his sufferings on the 16th of August following.

Cases of Hydrocele and Ascites, treated by Acupuncture. By T. PUREFOY, M. D., &c., Cloughjordan.

CASE I.—A healthy boy, aged nine years, had been affected with hydrocele of the tunica vaginalis testis of the right side, for a period of twelve months. During this period both mercury and iodine were used for some time as local and constitutional remedies, but without any good effect, the tumour continuing about the size of a hen's egg on the day when acupuncture was employed. Several punctures were made at intervals of two or three days, with a small needle, care being taken to make tense the coverings of the testis before introducing the instrument. Only one or two punctures were made at each operation. A small jet of transparent serous fluid followed the first punctures which were made; subsequently only a small quantity of fluid trickled from each wound.

This treatment having been continued for three weeks, without the aid of any other remedial means, the use of the needle was discontinued, and absorption went on so rapidly that at the end of three weeks no trace whatever of the disease could be detected.

CASE II.—An infant aged eighteen months, who had suffered under the same form of disease for two months, made an equally rapid recovery by the use of the same remedial means.

CASE III.—A boy, aged thirteen years, of strumous habit, and very delicate health, experienced the most decided relief of all his distressing symptoms,—arising from extreme distension of the abdomen,—by the use of acupuncture. He had been ill for several months, labouring under chronic dropsy, with enlarged liver, and subacute inflammation of the bowels. Alterative doses of mercury, with counter-irritation following the use of the needle, and a well regulated diet, effected the discharge of the accumulated fluid, partly through the punctures and in part through the medium of absorption, so completely, that the remaining enlargement of the abdomen was only such as arose from the laxity of the abdominal parietes and the increased size of the liver.

A very considerable discharge of fluid came away upon the first introduction of the needle; this was followed by general anasarca, but in a little time the discharge became much less, and absorption of the fluid within the peritonæum went on rapidly.

CASE IV.—In an aged gentleman labouring under chronic stricture and hydrocele, I tried one puncture with a glover's needle for the relief of the hydrocele; from the wound there flowed merely a few drops of

fluid, but on the next morning the penis and scrotum were œdematous, and the prepuce greatly swollen and enlarged, the œdema being evidently occasioned by the extravasation of the fluid of the hydrocele into the neighbouring cellular tissue. The hydrocele completely disappeared, leaving merely the enlargement occasioned by the thickening of the tunica vaginalis testis, as the disease had been of long standing. As might be anticipated, the cure in this case was not complete; but the use of the needle was quite sufficient at any time to give exit to the accumulated fluid, and thus to afford, if not permanent, at least complete relief until the fluid had again collected.

It appears from the result of these cases, that when acupuncture is employed for the cure or relief of either hydrocele or ascites, the serous fluid, in part only, escapes by the punctures made with the needle; and that the greater portion becomes extravasated into the cellular tissue, from which it is subsequently absorbed, and, perhaps, then eliminated by the kidneys. Acupuncture proved a valuable auxiliary remedy in these cases, and, where it could not be expected to cure, it did not fail to relieve. In the recent uncomplicated cases of hydrocele, occurring in infancy, this remedy alone effected a complete cure, as the boy first mentioned remained perfectly free from the disease for many years after its removal. In the cases of chronic ascites and hydrocele, acupuncture afforded much temporary relief, and also assisted the favourable operation of the other remedies employed.

Case of Anchylosis of the second and third Molar Teeth at a right Angle.
With an Illustration. By W. GRIMSHAW, F. R. C. S., Dentist.

THE accompanying illustration exhibits a molar tooth which I extracted from the upper jaw of a lady about sixty years of age, who applied to me about two months ago, in order to have it removed. Upon attempting to bring it away I experienced a great deal of difficulty, so much so, that I felt persuaded that there was something very unusual connected with it. During the effort at extraction, the entire maxillary bone appeared to shake under the forceps. However, by proceeding with the operation in a very cautious manner, I gradually succeeded in removing the tooth. Upon examining it, I found that it had been ankylosed at the roots with another tooth, the dens sapientiæ of the left side, which joined it at a right angle, and created the difficulty attendant on its removal. In the course of my experience I have not met with an exactly similar specimen, nor have I read any description of such an occurrence in books on dental surgery, although I have frequently seen teeth joined together at their sides; it is not very uncommon to meet with primary teeth thus united.



Case of quadruple Mammæ. With an Illustration. By P. SHANNON,
F. R. C. S., Surgeon to the South Dublin Union Workhouse.

EXAMPLES of quadruple mammæ in the human female are so uncommon that the following well-marked instance of this anomaly, which was recently under my observation, may possibly prove of some interest to the profession.

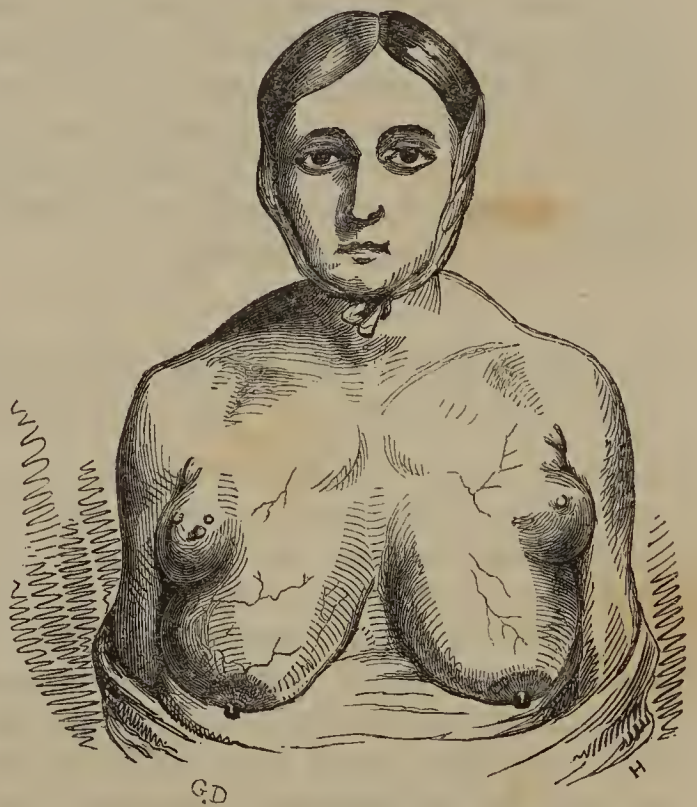
Anne Merriman, aged thirty-four years, was delivered of her sixth child in the month of August last, being at the time an inmate of the South Dublin Union Workhouse.

Soon after her accouchement the attendant informed me that this woman had four breasts, and that they all contained milk in abundance. On inquiry the nurse's statement turned out to be perfectly true, and I immediately procured by Mr. Neilan a full-sized drawing, from which the accompanying illustration has been reduced.

The supernumerary breasts are placed one at either side, above the ordinary situation of the mammary glands, and very near the margin of the axillæ. Each

of them envelopes, and in a great measure obscures, the prominent fold formed by the free margin of the pectoralis major muscle.

When distended they are each of a spherical shape, and of the dimensions of a large goose egg, being equal to about one-sixth of the size of the true breast, which, in this woman, is largely developed. Their position also is such, that when loaded with milk they interfere considerably with the motions of the arms. On the left side the supernumerary gland is provided with a single nipple, whilst that on the right side possesses two. These resemble in all respects (except in size) the corresponding parts of the true breasts, and are, to all appearance, identical in structure with the true nipples. The lacteal secretion flows abundantly from them when they are squeezed. When the draught commences in the larger breasts the supernumerary glands are also distended; and when the child is applied to either of the true nipples, the milk flows freely from the nipples of the smaller breasts, saturating the woman's dress, and thus occasioning her great inconvenience. A mole upon the right supernumerary breast gives, in the illustration, an appearance of a third nipple.



All the nipples are surrounded by well-marked areolæ, but those of the true breasts are of a much darker tint than the others.

From some superstitious feeling this woman could never be prevailed upon to nurse any of her infants at the smaller breasts, though from the preceding details it may be fairly inferred that they would have afforded a considerable amount of nutriment.

Anne Merriman was the daughter of a small farmer in the county of Kildare. None of her relatives had ever presented any anomalous condition of the mammæ : of this she is positively certain, for the most anxious inquiries were instituted on the subject by herself. She never had more than one child at a birth; all her labours were natural; and the generative organs, so far as can be ascertained by a vaginal examination, are perfectly normal.

She says the supernumerary breasts were first discovered about the period of puberty, and that they have always enlarged in proportion to the true breasts during pregnancy and lactation. When the process of nursing is discontinued they speedily diminish in size, and produce little or no inconvenience in their flaccid condition.

In the human mammæ anomalies as to number are of comparatively rare occurrence, nevertheless instances sufficiently numerous to attract the attention of medical men have from time to time been observed. It has been remarked that in the majority of such cases there is a redundancy of development,—three, four, and even five breasts having been sometimes noted, whilst examples of their total absence, or of a solitary mammary gland, are much more uncommon. Geoffroy Saint-Hilaire has explained this ingeniously by shewing that a numerical increase of the glands in question is but a repetition of one of the most general characters of the great class mammalia.

In the *Dictionnaire des Sciences Medicales*, article “Multimamme,” we read of a rich heiress who had four breasts, and who for many years refused to marry lest she should produce four children at every birth! Being assured, however, by the most eminent of the faculty, that her fears were groundless, she was at length prevailed upon to change her state, and she had afterwards the gratification to find herself strictly uniparous. The subject of the present communication had no such apprehensions, being, like most of her countrywomen, free from the prejudice against a numerous offspring which prevails so generally in French society.

A case very similar to the above is reported by Dr. Robert Lee in the *Medico-Chirurgical Transactions*, vol. iii. Second Series; it is afterwards quoted by Sir Astley Cooper in his work on the breast, but, with this exception, I have been unable to find in the English periodicals or standard works any example of the malformation in question.

[We have just been informed by Dr. Santisson of Stockholm, that an instance of four mammary glands in the *male* was seen in Sweden some years ago, and that an account of it has been published in the *Proceedings of the Swedish Medical Society*.—ED.]

Some Cases illustrative of the alkaline Treatment of Dysentery. By D. KELLY, L. A., Mullingar.

Acute Dysentery ; Alkaline Treatment ; Cure.—February 11th, 1847. William Reeves, aged 28, was suddenly seized, at 2, A. M., with violent tormina, tenesmus, and purging, which was preceded for a few days by diarrhœa, but to which he paid no attention.

When first seen, at 9, A. M., he was labouring under constant retchings; the ejections whitish ropy mucus; violent purging, dejections frequent, bloody, serous, and colliquative, flowing from him, but not unconsciously, each motion being preceded by a feeling of sinking, and most excruciating pain in the region of the colon; constant thirst, cold tongue, and extremities; extreme prostration; dorsal decubitus; no cramps; intellect unimpaired; gargouillement in right iliac region. A starch enema, with one drachm of tincture of opium, was administered; turpentine stupes applied to the lower part of the abdomen; thirty minims tincture of opium given in a draught; and jars of hot water applied to the upper and lower extremities.

1 P. M.—The lavement came away almost immediately, accompanied by a copious sero-sanguineous motion, mixed with coagula, five of which he has had since the morning visit. Ten minims of liquor potassæ and five of tincture of opium, were given every second hour; to continue the turpentine stupes; barley or rice water for drink; and a spoonful of brandy and water every hour.

8 P. M.—Has been comparatively easy since the commencement of the alkaline treatment; had but two motions since last visit; tormina and tenesmus so considerably abated that he has scarcely remarked their occurrence.

There being some abdominal fulness, with just perceptible tympanites, I gave, at bed-time, one grain of opium, one grain hippo, ten grains hyd. c. cretâ, and ten of dried soda.

12th.—Passed rather a favourable night; about 5 A. M. had two brownish, bilious-looking feculent motions, extremely fetid, and, presenting scarcely any trace of the dysenteric character. To continue the medicine, increasing the interval to four hours, and have two or three spoonfuls of rice jelly every hour.

13th.—Had a very good night, slept quietly, and awoke refreshed; no gargouillement or soreness on pressure; bowels opened but once since morning; dejections more consistent and natural; pulse full and soft; omit medicine, and continue rice regimen.

14th.—Convalescing rapidly, and sitting up.

16th.—Convalescent.

The feature of most importance in this case was the almost magical effect of the alkali in allaying the tormina, tenesmus, and purging, the tincture of opium appearing to exert no influence whatever over the disease till combined with the liquor potassæ; the patient remarking, when I visited him in the evening, that the last medicine produced a feeling of ease and rest from pain quite cheering to him.

Acute Dysentery, of a Fortnight's Duration; Dysuria, Œdema, and tendency to general Anasarca; Alkaline Treatment; Cure.—February 28. Being called suddenly to see a carpenter named Patrick Oulaghan, aged about 70, who, I was told, had fallen down in a fit, and was dying, I found on my first visit that he had been labouring under dysentery of a fortnight's duration, and that, having got up for a motion, he had fallen through debility. He then presented the following symptoms: appearance dusky and collapsed; tongue cold; eyes drawn in, shining, and surrounded by leaden-coloured areolæ; voice low and whispering; pulse almost imperceptible; intense thirst; extremities cold and œdematous; dysuria; tormina, tenesmus, and almost incessant purging; dejections scanty, muco-sanguineous, with glairy, yellow deposit, as if the process for the production of plastic lymph had been arrested through debility, and a gelatino-albuminous secretion, coloured by cholesterine, was the result; iliac gurgle, and soreness on pressure; abdomen slightly collapsed. Ten minims of liquor potassæ and five of tinct. of opium were given every second hour; a mustard poultice applied to the abdomen three times a day; rice regimen and brandy and water. Slight improvement in the evening.

March 2. Much improved to-day; had but four pinkish, flocculent, fibrinous evacuations, with just perceptible yellowish tinge, since yesterday; strength much improved; œdema on the increase; dysuria less. Continue the medicine, but with four hours' intervals.

5th. Had ten or twelve muco-feculent motions, with scybala, tormina, and tenesmus, during the night, in consequence of having regaled himself with sweet cake and tea in the evening. A draught of castor oil and tincture of rhubarb given; other medicines continued.

8th. Convalescing most favourably, had but two feculent, brownish, consistent motions during the day; œdema of feet and legs still continues, with anasarca tendency. Omit medicines; four ounces of broiled meat for dinner, and a glass of porter twice a day.

12th. Anasarca and œdema gradually disappearing under influence of good nourishment.

20th. Convalescent; œdema and anasarca have disappeared; and, on the whole, he appears much stouter and in better condition than he had been for years before.

In this case, also, the alkaline treatment was most satisfactory, checking almost at once the purging, tormina, and tenesmus, which it appeared to keep in complete subjection, till reinduced by an error in regimen, which, in its turn, promptly yielded to an aperient and a continuance of the alkaline treatment.

Viewing dysentery under the phase of increased acidity in the whole tract of the alimentary canal, which, to a certain extent, is proved by the fact of the dejections at once developing an exalted acid reaction on the application of the litmus test, and being originally led into this train of thought from observing the highly acid state of the motions in the bowel complaints of children, analogy

prompted me to adopt a treatment calculated to counteract and neutralize, if possible, that peculiar tendency, by exhibiting, in combination with alkalies, a regimen which should be as free as possible from acescence.

Scybala, which are considered by most authors as one of the pathognomonic symptoms of the disease, I certainly never saw passed, that their presence could not be clearly traced to errors in diet. Considering them, therefore, as an accidental and not a constant symptom, and supposing their presence to be invariably dependent on errors in diet, it follows as a corollary to that hypothesis, that in the choice of solids all substances having a tendency to leave too great a residuum in the bowels should be avoided.

In pursuance of these views, rice-jelly, prepared by boiling equal quantities of rice and fowl, or beef, into a jelly, removing the meat, and flavouring with salt, pepper, or any spice, according to the taste of the individual, should form the solid dysenteric regimen.

With reference to fluids, the drinks should be of as inascessant a character as possible, viz., rice water, barley water, thin arrow root, toast and water, or plain water, with brandy or whiskey and water for a stimulant when such is required.

Beer, wine, ale, or any fluid containing much sugar, in consequence of their great tendency to acescence, are, therefore, contraindicated; and milk, so universally used in these diseases, is, I think, even more objectionable still, for directly it is received into the stomach it is at once converted into a highly acid whey, and tough, indigestible curd, the first increasing the hypercatharsis already in existence, and the latter, by accumulating in scybala, producing the most excruciating tormina and tenesmus for their expulsion.

In conclusion, I wish it to be distinctly understood that I do not pretend to assert that the alkaline treatment will prove effectual in every case of dysentery; my only object in putting forward the above cases being merely to draw the attention of the profession to the subject, now that the disease is again likely to become rife, that so they may give it a fair trial, and thus impartially judge for themselves.

Notes of a Case of Bronchial Fistula; from the Clinique of Professor Chomel, at the Hotel Dieu, Paris. By MAURICE H. COLLIS, L. R. C. S.

Examination.—N. M., aged 23, a discharged soldier, pale and emaciated, especially in the upper extremities; the lower were infiltrated with serum; pulse 96; cough troublesome, accompanied with a viscid sputa in opaque masses (at times fetid), floating in abundance of mucus. In the interscapular region, to the right of the spine, are found four round marks, red and raised, such as a cupping-glass would make. The two best-marked of these present fistulous perforations; the upper and larger (about three and a half inches in diameter) gives constant exit to pus of sufficiently healthy appear-

ance, and generally devoid of smell; at intervals, however, it is fetid. The discharge is mingled with air bubbles on forced expiration being made by the patient, or by pressure on the external tumour by the examiner. Such pressure gives the sound of gargouillement in the thorax. From the other fistulous orifice pus of a less healthy character is discharged, being thin and fetid; the quantity less, and the escape of air not so well marked. The right side of the thorax appears considerably larger than the left. Percussion gives a complete dulness laterally and posteriorly for two-thirds of its extent; clear over the tumours; over the dull portion respiratory murmur inaudible, faint, mixed with râles, and a few fine bubbles over the rest of the right lung; over the left puerile, with râles. Heart normal in position and sound, except an obscure *bruit de soufflet* with the first sound; there is also a well-marked murmur in the jugulars. Appetite good; no diarrhoea; moderate night sweats; bad sleep, from constant cough.

History.—He states that from his childhood he has been subject to a cough every winter, with expectoration, but never of blood. It does not appear that either he, or any of his family, have shewn signs of any scrofulous affection. He enlisted two years and a half back; six months after he was in hospital for what was called a typhoid fever, during the progress of which he lost flesh, was discharged as cured, did not regain his former good condition, and was annoyed by a severe cough, without expectoration. Three weeks after his leaving hospital, he experienced severe pains all around the base of the right lung; his complaints, however, were disregarded, and he was compelled to return to his duty, and mount guard at night; and the next week he had a five days' march, at the end of which he was much exhausted, but still was not attended to for some days. When at last examined, a fluctuating tumour, about three or four inches in diameter, was found in the right interscapular space. This was set down as a muscular abscess, and was opened with a lancet, when about a pint of pus escaped. After discharging some time it closed, and another formed in the neighbourhood, which was similarly treated, and with a similar result; and so, four abscesses were opened, the two latest of which have never closed, but give constant issue to pus, as already stated. After a time he was discharged from hospital and the service, and was admitted into the *Hôtel Dieu*, in the month of September last.

Diagnosis made Dec. 9.—1. It is more than probable that what was called typhoid fever was neither more nor less than the febrile symptoms accompanying the formation of a purulent effusion in the pleura, the existence of which, the enlargement, dulness, gargouillement, and escape of pus, &c., leave no room to doubt. The severe pain felt three weeks after hardly militates against this opinion, as this may easily be attributed to increase in the violence of the affection, consequent on neglect. We may, therefore, diagnose pleuritis with effusion of two years' standing, causing pressure on the inferior cava, and producing œdema of the lower extremities.

2. Equally easy is the diagnosis of fistulæ, communicating with the upper part of the sac and the bronchi on one hand, and with the sac and atmosphere, between the third and fourth and fourth and fifth ribs, on the other; but here are one or two points to be noted:—whence comes the fetid pus which flows almost constantly from the lower orifice, and occasionally from the upper. Is it from a carious rib or vertebra?—Perhaps so. If not how can we account for the two persistent fistulæ? The case is not rare. M. Chomel gave a case of a man who had a fistula opening externally, and another through the diaphragm into the stomach, giving rise to frequent vomitings of pus; and remarked that here the expectoration is fetid, that there are mucous râles in the summit of the right lung, and joining this to the fact of a communication existing *through the sac*, between the bronchi and atmosphere, we come to the conclusion:—

3. That there are softened tubercles in both lungs, especially the right, and a tuberculous cavity in the centre of the right lung.

4. That there may, perhaps, be caries of a rib also; but the signs are not positive.

We seem, then, to have to do with a case of subacute pleurisy, which has given rise to a copious pleural effusion, and fistulous communications with the atmosphere and bronchi, together with more recent tubercles and cavities, and perhaps caries of the rib, &c. (I should have stated that one of the gentlemen present was of opinion that a carious abscess had been the primary affection, and that this had opened first into the pleura, and then come back again through the integuments. Were this the case, we should have had violent pleural inflammation on the bursting of the carious abscess into the pleura.)

Prognosis.—Grave, from the complication of tubercle; he has no diarrhœa, and his night sweats are moderate; yet, still, the constant drain, by means of the purulent secretion, will have the same effect; his sleep is broken by the cough; the most favourable point is his good appetite.

Treatment.—Good, nourishing diet. Bark and other tonics; iron for the impoverished state of his blood (evidenced by the venous murmur, bruit, œdema, &c.); opium, of which he takes seven grains *per diem*, less having no effect. Frictions of very mild iodine ointment, more for the purpose of keeping up his confidence than in the hope of benefitting him therapeutically, were employed.

Death.—The prognosis was too true, as the man sunk on the night of the 13th December.

Autopsy, 14th.—An immense sac at the base of the lungs; its boundaries, the lung above, reduced to one-third its proper bulk; the ribs and vertebræ at the sides; the diaphragm below, lined with thick and dense false membranes; the base of the lung so fixed as to be incapable of pressing on the sac when filled (hence the air and pus escaped during *expiration* only, from the pressure of the ribs). Several openings into the bronchi. The trajet of the two external fistulæ was,—the upper directly backwards between the third and fourth ribs into the sac; the lower very obliquely downwards through

the dorsal mass of muscles, and between the fifth and sixth ribs, into the sac also. No direct communication of either with the bronchi could be made out, but that it did not exist I cannot state positively, as the autopsy had not been conducted very carefully as far as the removal of the parts was concerned. An irregular cavity of the size of a large nut, which communicated with the sac, was found in the centre of the right lung. Tubercle in the softened stage existed abundantly in the right lung, and in a less degree in the left. The bronchi were thickened to obliteration in some parts. Pneumonia of the third stage in the base of the lung. No caries could be detected.

The only point not cleared up by this autopsy was the special fœtor of the discharge from the lower orifice: whether it arose from the lengthened course of this fistula, or from any special communication between it and the small tuberculous cavity, is a doubtful point. I incline to the former opinion; for we sometime see long fistulæ producing fetid pus, and the lung did not seem to reach so low as the internal orifice of the fistula.

Case of Traumatic Tetanus cured by Donovan's Tincture of the Resin of Indian Hemp. By MATTHEW MAC GARVEY, Surgeon, Borrisokane.

DANIEL WHELAN, aged 23, a slater by trade, slightly made, of temperate habits, states that three weeks since he received a slight wound by a reaping-hook in the first joint of the two forefingers of the right hand; this he dressed with some quack preparation without any apprehension of danger for seventeen days. He then felt a stiffness in his neck, which soon extended to the extremities and body, with an occasional acute pain in the epigastric region, and passing through to the back; and the muscles of his jaws became tense. These symptoms gradually increased in severity until the twenty-first day, when I visited him. He was then labouring under opisthotonos; the body arched, and resting on the occiput and heels; jaws clenched, palpebræ in constant motion, and the abdominal parietes as hard as a board. The paroxysms were both frequent and severe, and were each from six to eight minutes' duration, followed by an intermission of about fourteen minutes. The wounded fingers were in a sloughing state, accompanied with a sanious discharge of a most offensive nature. It was now 7 o'clock, P.M. The tetanic expression of face, and the rigidity of muscle of the whole body, had considerably increased since morning. This I considered a good opportunity for testing the efficacy of Indian hemp in the treatment of tetanus, and twenty-five drops were given immediately.

8 o'Clock. He had three paroxysms during the last hour. The draught was repeated.

9 o'Clock. Had three returns of spasm, but not so severe. The dose was increased to thirty drops.

10 o'Clock. Had only two paroxysms. The medicine continued.

12 o'Clock. Slept for one hour and a half; only one return of the fits. The dose decreased to twenty-five drops; to be given now every two hours, except during sleep.

12th Sept., 1847. The report is, that he passed a good night; had no return of the paroxysms; rigidity considerably lessened; can introduce his forefinger between his teeth. Ordered beef-tea. Pulse natural; bowels were constipated, for which an enema, containing castor oil, turpentine, and assafoetida, was administered; this brought away a great quantity of dark-coloured faecal matter.

Barm and linseed-meal poultices were applied to the fingers until the sloughs were detached.

13th. Had a good night, with the exception of one hour, having caught his tongue between his teeth, which caused great excitement for a short time, but is now free from pain or uneasiness.

14th. Passed a good night; had no return of the former symptoms. Bowels moved by broth injections. The body has assumed its natural appearance, and he can use the limbs with perfect freedom. The drops decreased to ten every fourth hour.

15th. Had a very good night. The fingers look much better, and the discharge has a healthy appearance. Verdigris ointment, one-half the usual strength, used for dressing the fingers. Secretions natural. All medicines omitted. Can get out of bed without any assistance.

22nd. Fingers healed; can masticate his food, and was this day able to walk into town, a distance of two miles.

Cases of Abscess of the Tibia. By EDWARD HUTTON, M.D., M.R.I.A.,
Surgeon to the Richmond Hospital.

I. JOHN SHELLY, aged 20, was admitted into the Richmond Hospital on the 11th of February, 1847, on account of pain and swelling in the upper part of the right tibia. He stated that about a year previously he was kicked by a horse on this part, which did not then give him much trouble, but it remained sore on pressure; in July, 1846, it was again injured by a horse falling on it, and became more painful. A month afterwards he observed a swelling at the upper part of the leg, near the knee-joint, this then increased and extended gradually downwards, the pain became more severe, particularly at night, and prevented sleep. During the day he was sometimes free from it, but it recurred after exercise. He had no treatment until the end of December, 1846, when he applied a blister to the part; at this period the swelling had not extended further downwards than three inches, but after the application of the blister the pain was considerably aggravated, and the swelling gradually increased, until it reached to the middle of the bone. He suffered much from loss of rest, he lost flesh, and his general health became impaired. On his admission, the swelling occupied the upper half of the tibia, termi-

nating abruptly at the middle of this bone; the leg measured in circumference, at its largest part, two inches and a quarter more than the opposite limb, and he complained of deep-seated dull pain, confined to the part, aggravated by standing or walking, and increased at night. The knee-joint was unaffected. The treatment consisted of leeching, small blisters, mercury, and afterwards hydriodate of potash and sarsaparilla. On the 26th of February the pain was in some degree relieved, but not removed, the swelling was observed to increase in circumference, and his general health did not improve. Under these circumstances, believing the case to be an abscess of the tibia, I prepared to perforate the bone, and procured a drill for that purpose; but on the 2nd of March, a prominence suddenly appeared about the centre of the swelling, which presented fluctuation; it was immediately opened with a bistoury, and an ounce and a half of thick pus was discharged: a probe introduced into the wound entered without obstruction into a cavity in the bone, and passed both upwards and downwards to a considerable distance. The opening in the tibia admitted the end of the fourth finger, and had a defined edge; no sequestrum could be felt; the cavity appeared to be lined by a membrane which was extremely sensitive: the evacuation of the matter gave him great relief.

March 7th. He had no pain; pus was discharged from the opening, of good colour and in some quantity. The circumference of the limb was three quarters of an inch less than at the previous measurement. Near the tuberosity of the tibia, there was a part about the size of a shilling tender and yielding a little to pressure. On the 11th of March the discharge had diminished, some pain was again felt, and the circumference of the limb had increased about a quarter of an inch.

14th. The measurement had still further increased, and pressure on the tender spot caused pus to flow from the aperture below. In two or three days an opening was made here also, and a probe was introduced into the cavity already described. The discharge of matter from this opening quite relieved his pain. The swelling gradually declined, until the circumference of this limb was found to exceed that of the other by scarcely an inch. The discharge of matter now nearly ceased. On the 12th of April the upper, and on the 16th, the lower opening had healed; he walked without the least uneasiness, and left the hospital at this period.

In three months afterwards I inquired about him, and was informed that on his return home he very soon resumed his usual field labour, and the care of horses, and that he never suffered the least pain or inconvenience from his leg, but, on the contrary, was able for any exertion. He remained well eight months, when he again injured the leg with a stirrup-leather, and was re-admitted into hospital on the 20th of December, 1847, a fortnight after the pain and swelling had returned. Four days after his admission a fluctuating prominence occurred, as before, on the middle of the swollen part of the tibia, which being opened with a bistoury,

exit was given to a considerable quantity of matter, and by the introduction of a probe it was ascertained that the cavity in the tibia was of as great extent as before. A fortnight after the discharge of matter, it was ascertained by measurement that the general swelling of the leg had diminished in circumference three quarters of an inch.

January 12th, 1848. He is going on favourably; the secretion of pus is diminishing: he has no pain, and his general health is good.

II. John Donohue, a smith, aged 25, was admitted into the Richmond Hospital, on the 28th of April, 1847, with pain and enlargement of the lower part of the right tibia. At its largest part, it measured an inch and a half in circumference more than the other limb; the skin was of a light pink colour. He complained of intense pain occurring in sudden pangs along the leg and in the foot, and also of a more continued gnawing or boring pain, felt in the affected part, which was much aggravated at night, and entirely prevented sleep. In the day time he had intervals of comparative ease. He had lost flesh, and his general health was impaired.

He stated, that when three years old he met with an injury, in consequence of which he was some five or six years laid up, and a piece of bone, an inch long, was discharged through an opening, then situated at the upper part of the present swelling. This opening soon healed and all pain subsided; the swelling remaining. On two or three occasions since, pain returned in the swelling, but yielded to treatment. Five weeks ago he got the measles, and during convalescence from this disorder the pain suddenly returned whilst he was out walking. This continued violent, and the swelling increased. After his admission into hospital, the treatment consisted for some days of the repeated application of leeches, mercury to salivation, and anodynes, but no relief was obtained. The pain became extreme and constant; his countenance was expressive of great suffering; he could not bear the least touch on the swelling, which had increased in size, and the skin, though not adherent to the parts beneath, had a pink blush; the veins of the foot and ankle were distended.

May 7th. Nine days after his admission a free incision was made down to the bone, and an opening about a quarter of an inch in diameter was rapidly made by Mac Dowall's Archimedian drill into the cavity, from which two or three drachms of pus, of a brownish-yellow colour, welled up. He suffered considerably, having resisted the inhalation of ether; and after the operation he was affected with spasms of some of the muscles, and pains along the course of the nerves of the leg and thigh. These symptoms were, however, relieved by an opiate, and he improved very much, in every respect, during the next eight days. The circumference of the swelling had diminished to the extent of an inch; pus continued to flow from the opening, and he suffered very little from pain. On the tenth day from the operation, however, the pain again became severe, and the swelling increased, purulent matter continuing to flow; he had

rigors, followed by sweats and considerable increase of fever. In three days an abscess presented itself about an inch above the artificial opening; an incision being made into it, an ounce of pus escaped, and a probe introduced into the wound passed into the same cavity in the bone. After this he recovered gradually, the discharge diminishing, and the swelling subsiding to a certain extent. He was discharged in June, and soon after returned to his laborious employment. He has remained quite well up to the present time.

III. Cornelius Mulvhill, aged 65, was admitted into the Richmond Hospital on the 2nd of August, 1847, with an abscess in the lower extremity of the right tibia, and another in the upper part of the left. As far as could be collected from the very imperfect history which he gave of his disease, it appeared that in the year 1843 the lower extremity of the right tibia became the seat of severe pain, followed by swelling of rather a firm character; that after a short time he was admitted into an hospital, and from the treatment there employed obtained considerable relief; but that, not long after leaving the hospital, the local distress recurred with greater violence than before, and continued until a tolerably free opening formed spontaneously at the lower part of the swelling, and gave exit to a considerable quantity of matter, the escape of which was followed by a subsidence of his sufferings, although the swelling continued. A year and a half afterwards, the upper extremity of the left tibia became similarly affected; the bone gradually became enlarged, and he suffered from severe, deep-seated pain. After a time this also opened spontaneously, but he did not obtain the same relief as from this occurrence in the right tibia. On his admission into the hospital the lower extremity of the right tibia was enlarged; a fistulous opening, from which pus flowed, was observed a little above the inner malleolus, and with a probe a considerable cavity was found to exist in the bone, but he suffered little pain from it; the integuments were of the natural colour, and the swelling was stationary. At the upper part of the left leg the skin was of a dark-red colour, and slightly œdematous; the tibia was enlarged to the extent of about three inches; below its tubercle a small fistulous opening existed on the anterior surface, from which matter flowed, but sparingly; a probe introduced through this aperture passed directly into a cavity in the interior of the bone. The swelling occupied at first about a hand's breadth of the upper part of the tibia, but it gradually extended; the pain became more severe and constant, and the patient's rest at night was broken. The matter did not escape freely through the aperture which had formed spontaneously. Under these circumstances I determined to make another opening, which was readily effected by means of a drill. A quantity of matter immediately gushed forth, and the patient at once experienced relief. This aperture, however, closed very soon, and the urgent symptoms returned. The crown of a small trephine was then applied, but this instrument worked badly, in consequence of the very uneven surface of the bone; and I enlarged the spontaneous aperture with

a small chisel and mallet, and in this way succeeded in making a sufficiently free opening. The operation was followed by some inflammation of the periosteum and soft parts; but the severe pain produced by the confinement of matter was relieved. A remarkable pulsation was communicated to the fluid lying in the cavity of the abscess, the contents of which the patient could, by turning his leg round, discharge, upon which the pulsation ceased to be visible. A few small detached portions of the cancellated tissue of the bone were removed upon one or two occasions. The patient's health began to improve, he rested well, and his appetite and spirits were good. In this way he continued until the 20th of last December, when he got an attack of diarrhœa, and an unfavourable change suddenly took place in his general appearance; his spirits gave way, his appetite failed, and his pulse became scarcely perceptible. A few days before death, which occurred on the 27th of December, a remarkable puffy swelling appeared in the left parotid region.

Autopsy.—The swelling in the parotid region was found to consist of a sero-sanguineous fluid effused into the cellular tissue. On raising the sternum, it was found fractured, and a red sanies escaped from its cancellated structure. The upper portion of each lung was consolidated, and there were extensive adhesions of the pleura, but not of recent date. The heart and its valves were healthy, but the coronary arteries were converted into osseous tubes. A thin layer of extravasated blood was discovered beneath the fascia, covering the psoas muscle, and also external to the abdominal peritonæum. There was likewise an effusion, to a considerable amount, of synovial fluid into each knee-joint. Upon making a longitudinal section of the lower extremity of the right tibia, the cavity of the abscess was found to be three inches and a half in length, and lined with a smooth, organized membrane, of considerable thickness. Two small, detached pieces of bone lay within the cavity; around it the osseous structure was more dense than natural, and immediately above it the medullary canal was obstructed by deposition of bone. The abscess in the upper end of the left tibia presented nearly similar appearances; it contained loose portions of the cancellated structure of the bone, and its lining membrane was dark-coloured and vascular. The anterior and posterior tibial arteries of this limb were ossified, and in the vicinity of the abscess were fully twice as large as natural.

Remarks.—In the foregoing cases the abscesses were situated in the cancellated structure of the tibia, but in a case published by Mr. Adams, in Todd's *Cyclopædia of Anatomy and Physiology*(a), the abscess existed in the extremity of the femur. Sir Benjamin Brodie has found them most frequently in the tibia. It appears that although these abscesses occur for the most part at the ages of puberty and in early adult life, they may take place in earlier and in more advanced age.

From the history of some of the cases related, it appears probable

(a) Article, Knee-joint, abnormal Conditions of.

that inflammation of the cancellated structure may occur without terminating in suppuration.

When suppuration does ensue, a cavity is formed, lined by an organized membrane, containing purulent matter only, or the cavity may contain also small fragments of the cancellated structure of the bone.

In most cases the osseous walls of the cavity are rendered thicker and more dense by the deposition of bone both externally and interstitially; and the medullary canal is liable to be blocked up in the vicinity of the abscess; but where spontaneous openings occur, there the wall of the abscess is, of course, absorbed.

When an abscess of this nature discharges itself and the opening heals, it may be a question whether the cavity remains, secreting only fluid, which is again absorbed, or whether granulations arise from all parts of the surface of the sac, coalesce, and become ossified. From my observation of the cases of this disease in the living, and the examination of bones in museums, I am inclined to think that the former is the more frequent occurrence, but further observation is necessary.

It must be supposed that the considerable variations found to take place in the extent of the swelling at very short intervals of time, according as the matter is confined or gets exit, depend upon the condition of the external softer parts, whilst that firm swelling which slowly extends itself along the shaft of the bone must be regarded as depending upon the enlargement of this structure.

This *progressive* enlargement of the bone along its shaft supplies a valuable means of diagnosis, taken in connexion with the other signs mentioned by Sir Benjamin Brodie, viz., excessive pain, such as may be supposed to depend on extreme tension, aggravated at intervals, and not yielding to treatment, but, although from time to time remitting, or even intermitting, yet returning with greater aggravation, and attended with loss of rest, impaired health, &c.

In acute necrosis it usually happens that the periosteum at once inflames to the full extent to which this disease is about to affect the bone; but in abscess of the cancellated structure the swelling and pain occupy the extremity of the bone, and the periosteum is often not sensibly inflamed at first.

With respect to treatment, when the signs of an abscess are apparent, and the patient suffers much from the disease, nature sufficiently indicates the proper course. Spontaneous openings, when they happily occur, bring relief. The surgeon, then, should certainly hasten this consummation; and although in simple purulent abscesses small openings may suffice, yet it so often happens that fragments of bone are contained within them, that it would appear judicious to make a free opening, and to clear the cavity of all *debris*.

The probability of large articulations, in the vicinity of the abscesses, becoming implicated, either in consequence of the abscesses opening into them, or from the irritation excited by the contiguous disease, is well insisted upon by Sir Benjamin Brodie as an argu-

ment for promptly giving exit to the confined matter, and the practice is fully borne out by the success which has attended it.

On the Discovery of a new Fluid for preserving the Colour of pathological and anatomical Preparations. By M. H. STAPLETON, M. D., F. R. C. S., M. R. I. A., Surgeon to Jervis-street Hospital.

SIR,—I beg leave to make known to the profession, through the pages of your Journal, the discovery of a solution, which I have employed during the last six years, for preserving pathological specimens. It possesses the important advantages of causing such preparations to retain their colour perfectly unchanged, and it does not harden the substance immersed in it. These two results are well instanced in several preparations in Jervis-street Hospital,—in particular preparations of the brain, shewing apoplectic clots; apoplexy of the lung, and the recent appearances in stricture of the urethra.

The process I adopt is simply as follows:—In a quart of a saturated solution of alum in water I dissolve half a drachm of nitre; in this fluid I immerse the recent preparation, which soon becomes decolourized, but the colour gradually returns within a few days, the period, however, varying in different preparations. When the colour is thus completely restored, I put up the preparation in a filtered saturated solution of alum. The specimens are open for inspection.

I remain your's, &c. &c.,
M. H. STAPLETON.

16th January, 1848.

To the Editor of the Dublin Quarterly Journal.

OBITUARY.

WHILE the famine and the pestilence, with their consequent commercial distress, and long train of horrors, form an epoch in the history of our country which never can be forgotten, the year 1847 has marked an era in the medical annals of Europe, which future historians will trace with wonder and dismay. Some of the most philanthropic spirits that ever graced an age have been suddenly quenched, while in the very exercise of their calling of charity. Men, the most eminent in the walks of their profession, who commanded the world's admiration, and attracted students from every quarter of the globe,—who advanced our science by the brilliancy of their talents, and captivated all who came within their reach by the kindness and generosity of their hearts,—have been snatched from us almost in an instant; and among our own countrymen, many friends and acquaintances, with whom we were in familiar intercourse, have been, within the last few months, removed to ano-

ther and a better world, where they will rest from their labours, and their works will follow them.

Liston, whose name will ever be venerated by the British surgeon, has been carried off by the sudden increase of a thoracic aneurism, when at the very pinnacle of his fame, and in the vigour of his manhood.

Deiffenbach, while surrounded by his class, and immediately after an operation in the theatre of his reputation at La Charité, suddenly fell dead into the arms of a physician, who had come from a great distance to witness his surpassing powers. A letter lately transmitted from Berlin, contains the following graphic description of this remarkable man:

“I try to write, but my thoughts are wandering. I feel quite confused and shocked by the news of the day, that Dieffenbach is dead. I scarcely knew him or liked him personally, but he was a man of supereminent talent, in whom life and genius almost visibly sparkled. When I last saw him conversing with Leopold, the rest of the company seemed sleeping, cold, or dead, in comparison with those bright spirits; and now he is—I can hardly credit it—dead! He died with the knife in his hand, with which he had performed so many wonderful, almost miraculous, cures,—but which, owing to his brave assurance, had also sometimes dared impossibilities: surrounded by a class of students,—lecturing as he operated. The operation was completed in the moment when he was struck dead,—so suddenly was he seized with apoplexy. A clergyman who was sitting outside of the circle, waiting to be operated on, heard his voice one minute, then was surprised at seeing a sudden rush and confusion, and flannels and brushes brought in. He thought the operation had failed. The circle opened, and the corpse of Dieffenbach was laid on the sofa where he had been sitting! His death makes even more impression here than Felix Mendelssohn’s. As a musician the latter was one of the few very prominent men in the world, but as a man among other men he took no lead. Dieffenbach, on the contrary, was a man of power,—he had a conquering aspect,—he enjoyed the world and subdued it;—there was something grand and almost savage in the character of his genius, which raised him above other men, and made most subservient to him. He seemed to feel he had the lives of others in his hands, and others felt it too; and the spirit of his life makes his death more impressive.”(a)

For the obituary of our Irish brethren, during the last year, we can but refer to the long sad list of *one hundred and ninety-one* deaths, which now lie registered before us, which Drs. Cusack and Stokes placed at our disposal, for the purpose of being arranged in the form which they present at page 120, and which shall, we trust, produce, from the authorities under which we live, for the widows and orphans of these gentlemen, that meed of remuneration which

(a) We are indebted to Dr. Graves for the portion of the letter above quoted.

was denied to their own labours while living. Notwithstanding that few of these, our brethren, were known to fame as writers or authors, such as usually come within the province of the biographer, they were not the less beloved and valued in the districts where, late and early, they toiled, among poor and rich; nor are they the less mourned by those who knew their worth, or experienced their generosity. A few, however, claim our more particular notice.

MEMOIR OF VALENTINE FLOOD, M. D., F. R. C. S. I.

PROMINENTLY among the many voluntary victims offered by our profession, during the past year, to the Moloch of typhus contagion, stands the name of him to whose memory we offer the following imperfect tribute. When we hear of the early struggles of those few who finally have attained wealth and fame, we are apt to imagine to ourselves a something exhilarating and ennobling in the strife through which they have successfully forced their way, feeling a sympathy something akin with that with which we survey the strong swimmer buffeting the unruly waves, and at length in safety reaching the shore: and such a sympathy is, probably, instinctive, and wisely intended for our support, amid the thousand natural shocks that flesh is heir to. Yet this feeling does not prevent us from sorrowing over those who have fought bravely but unsuccessfully,—who have “waged with fortune an eternal war,” and have been struck down amidst the conflict. The subject of this memoir,—an anatomist of singular merit, a well-known writer and teacher, and a highly-educated physician of excellent endowments,—met his fate while in attendance on the fever sheds of an obscure village.

Valentine Flood was the son of a barrister in Dublin. Having passed through the ordinary academical and collegiate courses, he became a graduate of our University. He served the apprenticeship, at that time necessary for becoming licensed by the Irish College of Surgeons, to Mr. Carmichael. In time he took out the letters testimonial of the Royal College of Surgeons, and, about the year 1828 or 1829, he was appointed Demonstrator of Anatomy in the School of Medicine connected with the Richmond Hospital. As to his character as an anatomist, we shall quote from a letter which we have received from one himself of no ordinary eminence, and who knew Dr. Flood intimately. “He was one of the most minute anatomists I ever knew: I do believe there were few in Europe who were so thoroughly acquainted with the anatomy of the human body as Valentine Flood. His knowledge of this most important science soon became known to the pupils whom he assisted in their dissections, and amongst them, in the capacity of Room Demonstrator, he maintained a very high character.” As an anatomist, his reputation increased, and he was appointed a Lecturer on Anatomy in the Richmond School about the year 1831–32. For two or three seasons he gave his undivided atten-

tion to this branch of the profession, and became a favourite amongst the pupils, both as a lecturer and a private teacher.

As early as the year 1828 he published a work on the anatomy and physiology of the nervous system, which is not without merit; but it is evidently the performance of one who had not yet acquired a lucid and correct style, and it never gained any considerable celebrity. During his connexion with the Richmond School, he brought out a work on hernia, consisting of eight folio plates, drawn on stone by Mr. William Lover, from dissections and designs by himself. This book, considered as a compilation, has never, we believe, been excelled by any work upon the subject. In 1839 he published the treatise upon which his fame will chiefly rest; this is his *Surgical Anatomy of the Arterial System*, a work which is, upon the whole, one of the best and most thoroughly accurate in the English language. Whilst anatomy retains its rank amongst the sciences, this work upon the arteries will retain its character as one of the ablest contributions ever made to that science, either in this or in any other country.

The descriptive anatomy of the human body is so beaten a track that it is, in our days, extremely rare for one to find in it anything novel, or which has not previously been observed. We are not aware that Dr. Flood made, more than his contemporaries, any great discoveries. There is, however, attributed to him in the Dublin schools, and, we believe, justly, the discovery of an internal ligament in the shoulder-joint, synovial in its structure, and analogous to the *ligamentum teres* in the hip.

We have said that Flood was an anatomist, an admirable demonstrator, and that, as a private teacher, he commanded one of the best classes in Dublin; and had he continued these pursuits, for which he was so admirably adapted, it is tolerably certain that he would have ultimately arrived at whatever eminence and degree of remuneration this country holds out to such pursuits. But to be a good anatomical demonstrator, a profound chemist, or a great physiologist, is one thing; and to be adapted, both by natural and acquired gifts, for a practitioner in medicine and surgery, is another. There are, as our readers well know, many qualifications besides medical knowledge, or even the application of that knowledge, necessary in order to gain the confidence of the public. A man may, moreover, at once exhibit such facility for teaching, and such knowledge of his subject, as to attract a class in a single season, but it generally requires long and arduous labour to become a successful practitioner.

This was the very rock on which, we believe, poor Flood split. He connected himself with one of our city dispensaries, about the year 1835, and laboured incessantly among the poor of the district in which he lived. His house was open to the distressed at all hours. The natural benevolence of his nature, added to the object he had in view, induced him to devote the greater portion of his time to visiting the sick poor, or relieving them at his own resi-

dence. To follow out his intention of becoming, by this means, introduced into general practice, his other pursuits, as a natural consequence, became neglected; students first complained, then rebelled, and finally deserted him. He lost position both as a lecturer and a private teacher, while profitable practice was still in prospective; and yet, all this time, a friend who knew him well writes to us to say, "he hunted out the poor with the most benevolent zeal and kindest sympathies, in the poorest and most miserable districts in our city. I have seen him often, in his own house, devoting his time and unceasing labours to the relief of poor patients, who consulted him at his residence. I never knew him to turn a deaf ear to suffering humanity; and I have frequently seen him give both medicines and money, to relieve and mitigate the disease and poverty under which so many of the wretched beings laboured who applied to him for assistance."

And this benevolent, disinterested, noble conduct, what did it lead to? The answer is, it led to the ruin of Dr. Flood. His time became absorbed by a pursuit for which he was not suited, and that did not return him a shilling; his other avocations were interfered with; his classes were deserted; and he had at length to leave Dublin, and to commence in another country the search after a fortune.

Dr. Flood went to London, and became connected with a medical school there (in Charlotte-street, we believe): but it is hard for a man who had worked and deserved as he did to commence life over again. It is said that his talents as an anatomist and physiologist were highly appreciated in England; but he did not succeed. His health became delicate, and, after much suffering both in mind and body, he returned during the last year to this country. He then obtained one of the appointments afforded by the Board of Health, to some fever sheds at Tubrid, in the county Tipperary, and there contracted the epidemic typhus, and perished.

On his tomb stands the following inscription: "This stone has been placed here by the clergy of both denominations, and the principal members of the Relief Committee at Tubrid, with a few other friends, as a memorial of their gratitude for the invaluable professional services, and their respect for the memory, of Valentine Flood, Esq., M. D., M. R. I. A., Physician to the Tubrid Hospital, who died of fever caught in the faithful discharge of his dangerous duties in that establishment, and whose mortal remains are buried underneath. Ob. 18th Oct., 1847."

We shall conclude with an enumeration of his works.

The Anatomy and Physiology of the Nervous System. Dublin, Hodges and Smith. 1828. 8vo. 1 vol. pp. 314.

The Anatomy and Surgery of Femoral and Inguinal Hernia. Illustrated with eight folio Plates, drawn on Stone by Mr. W. Lover, from Dissections and Designs by Dr. Flood. London, Sherwood and Co. 1843. Fol. pp. 13.

The surgical Anatomy of the Arteries, and descriptive Anatomy

of the Heart, together with the Physiology of the Circulation in Man and inferior Animals. 12mo. London, Highley. Dublin, Fannin and Co. 1839.

We think this a fitting time and place to make a few observations on some matters connected with the present state of the profession in Ireland.

From the foregoing detail, the announcement that Dr. Flood left his family totally unprovided for will not startle the reader. In this predicament the family of Dr. Flood form but an insignificant item among that mourning group of the widows and orphans of medical men who have been left almost homeless and penniless by the ravages of the last year. Some influential individuals have, however, generously come forward in behalf of the families of one or two sufferers, Dr. Valentine Flood and Dr. Goodison in particular. We wish God-speed to those who have applied their energies to this good work, but we confess that we should like to see these influential gentlemen heading and leading a *general subscription* for the widows and orphans who have been left unprovided for; not merely of two of their apprentices, but of *all* the medical men who have fallen victims in the discharge of their public duties during the last two years in Ireland. We are glad to state that the Government have offered to double the amount of whatever is subscribed for the families of these two medical men; and we cannot suppose that so gross an injustice could be done by a British minister as to withhold a similar boon in every case where a subscription was set on foot. In the case of our late esteemed friend, Mr. James Walker, of Manchester, who died in the early part of last year, of fever contracted in the discharge of public medical duties, the Government has granted a gratuity of £70. The same announcement states that "Government has also granted similar gratuities in some cases at Liverpool and Chester." This is as it should be: the widow and the orphan of the civil physician or surgeon who is stricken down by contagion caught in his attendance upon the poor, surely deserve a gratuity or a pension as well as of those who have perished in the army or navy medical service. But what gratuities or what pensions have, with the exception of the two cases already alluded to (and in these it was only granted at the intercession of peculiar influences, and as the result of a bargain that the Irish public should subscribe a moiety), been granted to the families of the one hundred and fifty-three Irish medical practitioners who have died of fever within the last two years? We believe nothing. Not so the benevolent British public. His Grace the Archbishop of Dublin having received a large sum of money from the London Ladies' Relief Association for Ireland, placed at the disposal of a committee of medical men of this city the sum of £500, which has been distributed among twenty-three cases,—“but what is this among so many?”

We know of no more appropriate place in our Periodical than this

for inserting the following, which we have received from the Secretaries:

“REPORT OF THE MEDICAL TEMPORARY RELIEF COMMITTEE.

Sir Henry Marsh, Bart.	Dr. Stokes.	
J. W. Cusack, Esq.	W. R. Wilde, Esq.	
Dr. Graves.	Dr. Croker,	} <i>Secretaries.</i>
	Dr. Benson,	

“This Committee having, at the suggestion of his Grace the Archbishop of Dublin, been intrusted by the Committee of the Ladies’ Relief Association for Ireland, with the sum of £500, for distribution amongst the families of distressed medical men, beg leave to lay the following details before the Committee of the Ladies’ Association.

“The Medical Committee were instructed to expend this sum in ‘meeting the present wants of the widows and orphans of those medical practitioners who have fallen victims, or who shall hereafter fall victims to the prevailing sickness, or to the pressure of fatigue and anxiety in the discharge of their onerous duties; or of such medical men as are disabled, by these causes, from the support of their families.’

“For the purpose of ascertaining the proper objects for relief under the foregoing conditions, a circular letter was sent to the principal medical men in every town in Ireland, requesting them to state confidentially to the Committee, the names, ages, and circumstances of any practitioners who suffered from fever in their neighbourhood; also what appointments they held during life; what sources of income, what provision they left, if deceased, to their families; the names and ages of their children; what friends or relatives they had, from whom any assistance might be expected; or any other information which it might be useful to the Committee to know.

“After carefully considering the answers to these inquiries, the Committee distributed the money intrusted to them as follows, in sums varying from £50 to £5.”

It is unnecessary to publish the names and circumstances of any of these cases. The instances relieved were those of the most urgent necessity. For example: “A widow, far advanced in pregnancy, left with *nine* children, the eldest of whom is only eleven years of age, without any means of support.” “The widow of Dr. —, left with seven children, the eldest only fifteen years old, without any means of support: the only persons from whom any help can be expected in this case are two brothers of the deceased, both curates, with large families, and extremely limited incomes.” “Dr. — left a widow and nine children, between six and nineteen years of age; one of the girls is *deaf and dumb*.” Two of these gentlemen died of fever caught during their attendance on temporary hospitals. “Dr. —, a distressed brother, aged 52, with a

wife and ten children entirely dependent on his exertions for support, who, from being attacked with fever (which was thus introduced among his family), lost his practice, and was reduced to a state of the greatest distress." "The children, ten in number (no widow), of Dr. —, left without any means of support except a trifling salary which the two elder boys have from petty situations." "To the parent and sisters of Surgeon — (who lately died of fever), and who were mostly dependent on him for support:"—and so runs this detail of misery and suffering, the whole amounting to twenty-two cases, among which are seventeen widows and ninety-four children; the enumeration would run thus: sixteen widows with sixty-three children; three practitioners, one with five and the other with ten children; fifteen orphans, and four parents and sisters; 116 persons in all, almost totally unprovided for.

We have a word to say to the profession upon this subject. A Medical Benevolent Fund was established in Ireland in the year 1842. To this a number of gentlemen have subscribed £1817; among whom we should mention Mr. Richard Carmichael, whose noble donation amounts to £500. This money cannot, however, be made available until the capital amounts to £2000. Now there are 2000 practitioners, on a rough calculation, in Ireland, who have never subscribed one farthing; and if each of these subscribed even five shillings a year, it would amount to £500 yearly, which would very soon enable the committee who have the management of the Benevolent Medical Fund to distribute a portion of its interest at a period when it never was more wanting. Last year the income amounted to £160, subscribed by forty gentlemen in Dublin, and 101 in the country. We beg leave to direct the attention of our readers, both in England and Ireland, to the Report of the Medical Benevolent Fund in our advertising sheet.

During the last few weeks a document has been placed in our hands, a reference to which, we think, does not appear inappropriate, while summing up the memoir of a physician who died of fever contracted in his attendance at the temporary sheds erected under the superintendence of the Board of Health. We learn from a number of the *Toronto Herald* that the scale of remuneration given to the Canadian medical man for temporary attendance upon the fever lately introduced there from Ireland, has been two guineas per day! and the public press in that portion of Her Majesty's dominions has, with becoming spirit, raised its voice against the injustice of lowering this rate of remuneration to twenty-five shillings per day upon the subsidence of the epidemic. Two guineas a day!—reduced to twenty-five shillings a day!—by the same executive that governs Ireland; awarded for a danger that has proved less hazardous among the profession; in a country where medical education is less expensive, and where provisions and all the necessaries of life are much cheaper than in Ireland. There cannot have been a Medical Board of Health in Canada.

While *poverty*, not will, consented on the one hand to receive the Government pittance in many instances in Ireland, a stern *compulsion* was pursued on the other. Here is an example.

LETTER OF DR. LAW ON THE SUBJECT OF THE BOARD OF HEALTH.

Rutland-square, Jan. 18, 1848.

SIR,—As you took so prominent a part in the movement of our profession relative to the remuneration of the services of medical men during the present epidemic fever; and as it was at your house I signed the requisition for a general meeting of the profession to express itself against the proposed rate of remuneration; and as it was on your application to me, after the proposed meeting was abandoned (and, I must add, in my opinion, most unhappily abandoned), that I added my name to the remonstrance against such remuneration; through no one more fitly than you can I explain, that, to those unacquainted with the peculiarities of my position, I may have appeared inconsistent with the sentiments I exhibited in signing the requisition for the meeting, and afterwards the remonstrance. My connexion with Sir Patrick Dun's Hospital, as Physician in Ordinary, involved me in this apparent inconsistency. This hospital, having room for more patients than its funds are competent to maintain, has always on the occasions of epidemic fever afforded accommodation to patients whose expenses have been defrayed by the Government. A similar arrangement, on the occasion of the present epidemic, was made between the Governors of the hospital and certain electoral divisions, to admit patients, their expenses being provided for. Part of the arrangement was, that these patients should be attended by the physician of the Hospital. The Board of Health was the channel through which this arrangement was to be effected. My colleague and myself determined not to accept the ordinary remuneration of the Board of Health; and, being unwilling, for our personal advantage, to embarrass the pending arrangements, we resolved to attend the additional fever patients without remuneration. This our resolution my colleague conveyed to a member of the Board of Health, who replied that the acceptance of the ordinary stipend was a rule of the Board, and in the event of a refusal of such stipend, that other medical men should be appointed to attend the patients. Having, then, no alternative but either to relinquish my hospital duty, and what I most valued,—the opportunity of witnessing and treating the fever,—or to accept the terms against which I had remonstrated, I felt that I neither compromised my profession nor myself in yielding to a course that I could not control; and, therefore, as part of the staff of the hospital, I acquiesced in an arrangement in which virtually I had no voice, it being conducted entirely by the Governors, who had, if they pleased, a right to command my services as physician to the hospital. In making this statement I have but a single motive, viz., to vindicate myself with the members of a profession, for the honour and real interests of which I will not yield to any other member in zealous attachment and devotion.

Your obedient Servant,

ROBERT LAW, M. D.,

King and Queen's Professor of the
Institutes of Medicine, &c.*To W. R. Wilde, Esq.*

MEMOIR OF SAMUEL LITTON, M. D.,

Late Professor of Botany to the Royal Dublin Society.

THE subject of the following notice was a native of Lancashire. In the year 1795, at the age of 14, he entered Trinity College as a pupil of Dr. Magee, then Junior Fellow, but subsequently Archbishop of Dublin. It was by the advice of that eminent man, who met young Litton in Liverpool, and perceived in him great industry and a pious disposition, that his family were induced to send him to this country to pursue his collegiate course. Dr. Magee was not mistaken as to Litton's industry and talent; he gained during his undergraduate course many premiums and certificates, as well as a scholarship and gold medal: but he was destined to disappoint the intentions of his friends as to the views which they had formed with respect to his future career. Dr. Magee and his father were both most anxious that Mr. Litton should stand for a fellowship, and afterwards enter the Church. In accordance with their wishes, and his own at the time, he read for a fellowship; but, just as the period of examination drew near, a change in his religious views made him conscientiously object to accept a fellowship, or to enter the ministry of the Church of England. We, who knew Dr. Litton in after life, and know his modest, yielding disposition, can well appreciate the mental agony which he must have undergone in resisting the entreaties of a fond parent, and a friend who had proved himself so uniformly attentive to his interest as Dr. Magee. It speaks well for the strength of his convictions, and the sincerity of his purposes, when Dr. Litton maintained his firmness under circumstances so trying.

His father died about this time; and, to Dr. Magee's honour be it recorded, he did not abandon the young man, who not only refused to follow his advice, but, what must have appeared more heinous in the opinion of the future Archbishop, merged towards Dissent. On the contrary, the author of "The Atonement" sustained him afterwards in a contest for the Professorship of Botany in the University, which he lost by the Provost's casting vote. Some time afterwards Dr. Litton was appointed lecturer on Natural Philosophy and Chemistry to the Dublin Institution. On the 26th January, 1815, he became Librarian to the Royal Dublin Society. In 1826 he became Professor of Botany to the latter body; and in 1837 Professor of Botany to the Apothecaries' Hall of Ireland. He fulfilled the duties of both the latter Professorships until his death.

Dr. Litton was likewise a Member of Council, and one of the Vice-Presidents of the Royal Irish Academy, a Fellow of the College of Physicians, and one of the physicians to the House of Industry. He died on the 4th of June, 1847, very suddenly, having lectured as usual on the day of his death, from symptoms simulating a violent attack of angina pectoris.

Dr. Litton was principally remarkable as a linguist. He was intimately acquainted with French, Italian, Spanish, German, and

Danish. He was also well acquainted with the literature of these languages, especially the poetic and dramatic. He possessed a very extensive acquaintance with books generally; not merely with the editions and the other petty objects of interest to the mere bibliographer, but with their contents, and was, in this respect, a valuable acquaintance to any one engaged in literary pursuits. As a botanist he never attained much celebrity, but his lectures displayed considerable reading, and his style was pleasing.

As to personal qualifications, we have known few men so amiable as Dr. Litton. His countenance, manner, and intonation were unusually agreeable. Reserved and diffident among strangers, he was very communicative and humoursome amidst friends. Having known and enjoyed the friendship and confidence of many scientific and literary persons, who are now historically celebrated amongst us, his anecdotes possessed no ordinary interest. But far beyond those qualities which rendered him an agreeable companion, were those which presented him as a just and most honourable man, and an unexceptionable gentleman. We have already stated that at one time he dissented from the Church of England; but he subsequently returned to it.

MEMOIR OF DANIEL MOORE, Esq.,

Licentiate Apothecary.

WHILE the young and the vigorous amongst us have been suddenly snatched away by the ruthless hand of pestilence, the patriarchal have also passed quietly to their graves, during the year we have just gone through. Those who reside on the south side of the city may, from the singularity of the equipage, have been attracted by an old-fashioned yellow chaise, drawn by a pair of aged, but still stout, cob horses, which lumbered along the Ranelagh road, during the fine days of spring and summer, for several years past. The occupant of the carriage was a venerable, grey-bearded old man, who always appeared to us to have come out of the last century, for the purpose of contrasting it with the present. And so he had. The best days of Daniel Moore, the father of the Irish apothecaries, were past and gone before the nineteenth century. We have long desired to write the history of pharmacy in Ireland, and have collected ample materials for that purpose, and the present occasion seemed a fitting opportunity for bringing such a subject before the profession; but, having already exceeded the usual limits of the Number, we find ourselves compelled, from want of space, to defer this duty to another period, when the lives of Lucas or Gifford will afford ample scope for such investigations.

The profession of pharmacy is of very ancient date in Ireland; and we find that in Acts of Parliament so early as the 6th & 7th of William III., the art of the apothecary is stated to be of great general use; and the members of that calling were then relieved from

filling the offices mentioned in these Acts, that they might be enabled "to attend the sick with such diligence as required." At another time we will enter more at length into this subject; but we may mention as introductory to this notice, that in the year 1747 the apothecaries of Dublin were incorporated by Royal Charter, under the name of "The worshipful Guild of St. Luke;" and the first meeting of the Corporation was held on the 25th of April, 1747, at the Mayoralty House in Dawson-street.

The subject of this memoir, the son of William Moore, an apothecary in Ballymahon, county of Longford, was born on the 23rd of October, 1750. After the death of his father he removed to Dublin, and was apprenticed to his uncle, Mr. Clarke, an apothecary in Capel-street, and at that time an eminent chemist. On the expiration of his apprenticeship, Mr. Moore bound himself to Mr. Whiteway, one of the surgeons of Steevens's Hospital, which institution he attended for some time, but he never took out the license of any college. He subsequently became apothecary to the Foundling Hospital, and afterwards commenced business in partnership with Messrs. Lee and Bardin in Suffolk-street. Mr. Bardin dying, the partnership between Mr. Moore and Mr. Lee was dissolved, and in November, 1780, he opened the establishment in Grafton-street, which he subsequently transferred to South Anne-street. His business became very extensive, and he was much engaged in medical practice, being the usual attendant of many of the first families in Dublin. He was four times elected Governor of Apothecaries' Hall, and represented the Corporation of Apothecaries in the Common Council from 1793 to 1807. He was by many years the last surviving original member of Apothecaries' Hall(*a*). In June, 1841, he dined with the Governor and Company, in celebration of the fiftieth anniversary of the establishment of the Hall. He was then in his ninety-first year, and spoke at some length on the occasion of his health being proposed. His first wife was a daughter of Mr. Semple, the architect; he afterwards married Miss Lennon, of Drumrainey, county of Westmeath. His eldest son, John William, was first his partner, and afterwards his successor in business(*b*). This gentleman attained an eminent position in his profession. At the time of his death, which occurred in his forty-third year, he was in the receipt of a large income from medical practice; he also ranked high as a chemist, and his scientific acquirements gained him the intimate friendship of Sir Humphrey Davy, and made his laboratory the resort of Wollaston and other scientific visitants of our metropolis. In 1821 he delivered, at the Viceregal Lodge, before the Lord Lieutenant and his Court, a course

(*a*) In 1826, Messrs. Hastings and Moore were the only two survivors of the fifteen Directors named in the Act of Parliament.

(*b*) He was for many years a Director of the Hall, and afterwards Governor, positions which have now been occupied by three generations of his family.

of lectures on natural philosophy and chemistry, a task for which his good delivery and great command of language admirably fitted him. His second son, Charles, was, on the recommendation of the late Mr. Wilberforce, appointed by Christophe, King of Hayti, Professor of Mathematics and Chemistry in that island, where he remained until the revolution, and the death of the King. William, his third son, settled in London as a physician, and died at the early age of 26. Frederick Moore, LL.D., his youngest son, was for many years one of the examiners in the Prerogative Court.

Mr. Moore died on the 27th December, 1847, in the ninety-eighth year of his age. His funeral was attended to Donnybrook Church by the entire Court of Directors. Mr. Moore had an astonishing memory, and has often afforded us information with reference to the medical men of Dublin in years gone by. His memory, for events of fifty years ago, was, up to a very recent period, wonderfully accurate.

MEMOIR OF RICHARD NUNN, M. D., F. R. C. S.,

Late Lecturer on Medical Jurisprudence in the Richmond School of Medicine(a).

WHEN high and aspiring talent, urged on by ambition and favouring interests, has reached the pinnacle of fame, and attracted the world's gaze, mankind shrinks in astonishment when the all-leveling scythe of death mows it down in the zenith of its career, and loud laments are heard that society should be deprived of so much commanding excellence; but the chasm is soon filled. Other and, perhaps, more lofty talent, hitherto slumbering in the shade, springs to the deserted stage, and he who was known to all, admired of all, applauded by all, rarely dwells so long in the memory of survivors as is supposed.

Somewhat different is the feeling left behind, when truth and sincerity, blended with humility and meekness, are suddenly hurried from our sight. Those who have known such an one do not easily forget him. His place is not easily filled in the affections of the little circle who have learned to love him; the tears of the poor, of the widow and the fatherless, of the houseless child of want, will long continue to flow, and those precious drops of unpurchaseable sympathy will

“ Still keep his memory green in our souls.”

To the latter class belongs the object of the present memoir, Richard Lorenzo Nunn, born in Dawson-street, in this city, in October, 1802. He was the eldest son of Joshua Nunn, a well-known solicitor of long standing in this city, and who has been for many years Law Agent to the University of Dublin.

(a) We are indebted to Dr. Bigger, the friend and medical attendant of the late Dr. Nunn, for the *materials* of this Memoir, which we would have published more *in extenso* did our space permit.—ED.

His school education was obtained from the Rev. William White, of South Frederick-street, who has sent into public life many boys who have afterwards distinguished themselves, amongst whom we may mention Professor Lloyd.

From Mr. White's school he entered the University under Doctor Elrington in 1819, and early in 1820 commenced the study of surgery, for which, from his childhood, he had exhibited a strong predilection, and in this year he was bound apprentice to the late Mr. Todd^(a). His Bachelor's degree was obtained in 1824; but he did not seek the degree of A. M. till 1832, when the franchise of the University being extended rendered his doing so of service to his friends.

His medical studies were conducted principally in the extensive hospitals attached to the House of Industry; and his anatomical attainments were acquired in the School of the College of Surgeons, and in the Richmond School. Never did a more patient and diligent student embrace the advantages to be derived from the opportunities presented to him; he was a general favourite with his teachers; and we find that for several years the surgical case books of the Richmond Hospital were intrusted to his keeping; and in 1825 he was appointed resident pupil in that institution, and continued to reside there until 1827, not only devoting himself most ardently to the surgical duties of his situation, but, at the same time, cultivating the study of pathology and lunacy, for which he enjoyed more extensive opportunity than most students.

In July, 1828, he passed his examination for the license of the Royal College of Surgeons in Ireland, and immediately afterwards filled the place of surgeon to the Carrick-on-Shannon Infirmary, during the illness of Dr. Leury, where his skill and attention made a very favourable impression. On his return to Dublin he was appointed Curator and Demonstrator of Anatomy at the Richmond School of Medicine, it being the wish of the professors to form an anatomical and pathological museum; and by him the first preparations in that valuable collection were made. Conjointly with these occupations, he gave private professional instruction to a certain number of advanced students, who were preparing for examination at the College.

We come now to a passage in the life of Mr. Nunn on which we touch with sorrow and pain, and which excited in the profession a very deep sensation of friendly commiseration for him, and of disgust at the narrow, short-sighted policy which actuated some parties to sacrifice a worthy individual to their own schemes. The occurrence we allude to took place in the commencement of the year 1834, when Mr. Nunn's name was submitted to the College of Surgeons as a candidate for the membership, the obtaining which would give him a voice in the deliberations of the College. About this

(a) See Mr. Nunn's letter on the subject of Mr. Todd's Case of Aneurism cured by Compression, in 1825, published in our third Number.

period, rival parties existed amongst the members, and party feeling ran very high. Mr. Nunn belonged to no party, and was tied to no clique; but on the day of election, when the fatal urn was brought into requisition, and the ballots counted, he who it was supposed had not an enemy in the world was found to have been rejected. The cause assigned for this unworthy transaction was, that Mr. Nunn being attached to the Richmond Hospital and School, was regarded by the College School party as one likely to give his interest to the Richmond party. At all events they black-balled this gentleman, against whose respectability, attainments, and honour, calumny could not breathe even a doubt.

We would rather not revive these unpleasant topics so many years after they have occurred, but refer our readers for information on this subject to a contemporary of the day(a), but that we believe much of the same spirit exists, though it does *not now govern*, as of old, in the councils of the College; and that is,—the endeavouring to legislate for the benefit of the school at the expense of the body(b).

The severe castigation given by the Lancet to the unmanly combination which thus to obtain a monopoly of public rights, aimed at accomplishing its purpose by striking at private reputation, will long be remembered by those who read it. A statement of this case was submitted to the late Chief Justice (then Mr. Serjeant) Pennefather, for his opinion, which was clear and explicit,—that a violation of the Charter of the College had been committed; that Mr. Nunn was duly elected, having had a large majority, notwithstanding the by-law requiring a majority of two-thirds; and counsel advised proceeding by *mandamus*. With this powerful opinion to back him, and contrary to the wishes of his friends, Mr. Nunn, guided by a love of peace, preferred yielding to the insult rather than allow proceedings to be taken. Perhaps his doing so caused a better feeling

(a) See The Lancet for 17th of May, 1834.

(b) The College School, it is true, is an anomalous condition of affairs, as far as its connexion with the body corporate of the College is concerned; but as a School of Anatomy and Surgery, &c., we believe it has effected much good in this country. We were educated in that School, we know its value, and we are not at all prepared at present to go the length of saying, as many do, that the College of Surgeons should not have a school attached to it, as is the case in London, &c. But we do object to the funds of the College at any time, but particularly in its present embarrassed condition, being appropriated to the support of any of the officers of the School, it matters not whether they be porters or professors; and we feel assured the day is coming fast when such matters will seriously engage the attention of the legislative assembly of the College. We beg distinctly to state that we are by no means hostile to the College School. We admire many of its professors. We think it holds up a high tone of instruction in this city. We believe that it is a means of exciting a just and honourable emulation among the teachers in other schools; but we do now, and have ever considered as a gross abuse, and maladministration of the funds of the College, allocating a sum of money to the maintenance of any particular professorship in that School, while similar privileges are not granted to lecturers upon similar subjects in all or any of the other schools.—Ed.

to prevail, for a short time afterwards, on his name being proposed, tardy justice was done him by an almost unanimous election.

In the session of 1836-7, Mr. Nunn was appointed to fill the chair of Forensic Medicine in the Richmond School.

We now come to that phase of life which reflects the greatest credit on the memory of Mr. Nunn. Wishing to become practically employed in his profession, he undertook the duties of Surgeon to the South-Eastern General Dispensary in 1838, and continued to perform them up to the period of his death. We are not writing a panegyric, but stating the simple truth, when we say that for the nine years during which he attended this institution, he exhibited the most unflinching assiduity, and, under circumstances the most unfavourable, the most consummate skill. But where skill was unavailing, and medicine useless, still this good man never withheld his presence or assistance wherever he thought he could afford the least solace to the sick and afflicted. Early and late he was to be seen in the abodes of misery and poverty, saying little, but doing much; fearless of contagion, though aware of the risk, he braved it in its worst forms and circumstances, supported by the conviction, that whilst he held the office it was a sacred obligation to perform its duties to the letter. Wet and dry, summer and winter, he pursued his melancholy and weary task, ever evincing cheerfulness, though his intimates well knew that his heart was often wrung with silent grief for the sufferings he daily and hourly witnessed. So much respected and loved was he by all the poor people of his district, that the gentleman who has supplied us with the materials for this memoir, and who for seven years laboured side by side with him in a neighbouring district, has never known him to be refused a *post mortem* examination, whenever he desired to investigate the immediate cause of death; so far will kindness, when genuine, avail to overcome prejudice.

The journal of his Dispensary labours is kept up to the 4th of December, 1847 (his fatal illness commenced on the 6th), and by it the number of patients visited appears to be, in eleven months, 2258. Independent of this he gave an hour every morning to such poor persons as chose to consult him at his house.

Since the decease of Dr. Nunn, a document signed by many hundred persons has been sent to his father, expressive of condolence at their mutual loss. The last paragraph runs thus:

“We can truly say of him, that in our sicknesses and our sorrows for many years, he has been our constant, skilful, and ever kind friend, and our deepest regret now is, that the labours of love which he was ever practising amongst us should have led to his untimely end.”

It must be remembered that the whole of this wearisome and incessant toil was perfectly gratuitous,—nay, more, it was expensive; the miseries he witnessed could not fail to draw from him something more than the mere expression, “Be ye warmed and be ye filled.” His modest deeds were silent vouchers of his humane feelings.

In the Sunday School of the parish he was for many years a diligent and valuable teacher. During the latter years of his life he was an active member of the Committee of the Society for the Relief of Distressed Protestants.

In the year 1842, knowing that the money-jobbers in this city extended their baneful practices amongst the very poorest classes,—tempting them to borrow small sums at enormous interest, to be repaid by instalments, and, when they proved unable to liquidate the first debt, encouraging them to pay it off by borrowing more, till the accumulation of debt and interest placed both them and their securities at the mercy of those harpies, to be duped out of all their little possessions,—Dr. Nunn, with a few friends, seeing the great amount of misery arising from this cause, set about the difficult and hazardous experiment of establishing a Loan Fund on equitable principles, by which honest industry would be encouraged, and the poor taken out of the clutches of those who were preying so mercilessly on their necessities. Accordingly, the South-Eastern Loan Fund was established, which in a great measure answered the designs of its founders; but, amongst all connected with it, no one gave such constant attention to its proceedings, or knew its details so well, as Dr. Nunn, and whatever success it has had is mainly attributable to his constancy and exertions.

Dr. Nunn possessed a good ear and fine musical taste; and in early life gratified both himself and his friends by playing on the flute, in which he arrived at great proficiency. His family are in possession of several musical compositions from his hand, said to be of a very high character. He also wrote some exquisite variations to several Irish airs, which we hope, at some future period, to see published.

To the Medical Benevolent Fund, from its foundation, he was a regular contributor.

Dr. Nunn's extremely gentle and obliging disposition endeared him to all who knew him; and his thoroughly unselfish nature, always ready to bear the burden of any friend, marked him amongst his fellows with a character peculiarly his own, and which will leave remembrances and regrets behind, which time can hardly lessen.

With over-tasked mind and body, he was pursuing his arduous and perilous career, when, in the latter end of November, he was attacked with influenza, which, however, he struggled against, only permitting it for one day to keep him from his duties. Whilst still weak from its effects, he persevered in visiting his fever patients, in the close atmosphere of their tainted chambers. In this weak state, contagion struck home on the poor man's friend. Malignant fever, of a very low type, prostrated all his energies, and, ten days after taking to his bed, he sunk, exhausted. Medical aid proved vain, his worn-out frame could not resist the intensity of the disease, and from an early period his medical attendants felt that there was very little hope of a favourable issue. His earthly career terminated at the age of 45, on the night of the 16th of December, 1847.

THE DUBLIN
QUARTERLY JOURNAL
OF
MEDICAL SCIENCE.

MAY 1, 1848.

PART I.
ORIGINAL COMMUNICATIONS.

ART. VIII.—*Observations on the Formation of organic Strictures in the Male Urethra, with some Remarks on their Consequences and Treatment. With Plates and Illustrations.* By SAMUEL WILMOT, M. D., Ex-Professor of Surgery to the Royal College of Surgeons in Ireland, and Surgeon to Dr. Steevens' Hospital.

STRICTURES of the urethra must be looked upon as forming a most important class of surgical diseases. Their frequency, the many great and formidable maladies they give birth to, the mental distress and bodily suffering which strictured patients constantly endure, stamp their character, and call upon every practical surgeon to use his best and most energetic exertions to enable him to afford relief. The frequency of stricture is well known, and a variety of causes has been advanced to account for it. John Hunter attributed the frequency of stricture to the double office the urethra has to perform, and to its complicated

structure. I will not make any remarks on this strange doctrine; let any one who may wish to become acquainted with it read the quarto edition of Mr. Hunter's work on the Venereal Disease, page 110. The urethra is highly organized, and is exposed to a variety of causes well calculated to excite in it morbid action, and to disturb it in the discharge of its natural functions. Gonorrhœa stands, I believe, foremost in the list; but we can trace the formation of strictures to gout, morbid urine, and to other causes, each of which is attended with inflammation, which, if not subdued in the early stage, is apt to degenerate into chronic inflammation of an insidious, obscure character: unless this be removed, the foundation of stricture, and of other diseases of the urethra, will, in the great majority of cases, be laid. What is the condition of the affected part of the urethra when such morbid actions take up their abode there? I answer, increased vascularity, some thickening, and loss of the elasticity of the lining membrane. This I consider to be the earliest stage of organic stricture, and if it remains unnoticed for any length of time, lymph will be deposited, which lymph becomes organized, and thus an additional thickening of the walls of the diseased portion of the urethra will occur, followed by a further diminution of its caliber at this point. We have sometimes an opportunity of treating strictures in this early stage, and of thus becoming acquainted with their condition. Patients frequently apply for advice for a gleety discharge, perhaps the result of an old gonorrhœa. They will tell us that they have taken every kind of tonic medicine, used a number of powerful injections, and employed sea-bathing, and that still the discharge continues. For such cases I never think of prescribing medicine with the expectation of curing the discharge. I tell such patients that a stricture has formed, or is forming, and that the introduction of a bougie will, most probably, effect a cure. When I gain permission, I pass a plaster bougie, and in general I find a sensitive part, at or near which spot a soft obstruction can be frequently felt, which offers little, if any,

impediment to the passage of the instrument. By continuing the use of the bougie every second or third day for some time, the morbid sensibility of the part will be removed, the gleet discharge will cease, and the pulpy obstruction, and all the other thickening, will disappear, leaving the urethra free. In such cases it is necessary to pass a bougie for some time after all the symptoms have declined. In so early a stage as this we have not as many opportunities of becoming acquainted with strictures as when they are of longer standing, and are more developed, for if no discharge has preceded or accompanied the formation of a stricture, there is usually nothing to excite the attention of the generality of patients; and though there must be some diminution in the stream of urine, yet this change goes on unnoticed by a great number of men, particularly those in the working classes, who frequently become conscious of the existence of a stricture only when a decided difficulty in passing water comes on, or retention takes place. By this time the stricture has undergone remarkable changes; it is now of a resisting and firm consistence, and its aperture is smaller.

I am sorry to say that the pathology of strictures is more limited than we could wish, owing in a great measure to the scarcity of *post mortem* examinations, and to the circumstance that authors who write on the subject appear to withhold what they have learned respecting it. Some very valuable books have lately appeared on urinary diseases, but very little attention has been paid by their authors to the pathology of stricture.

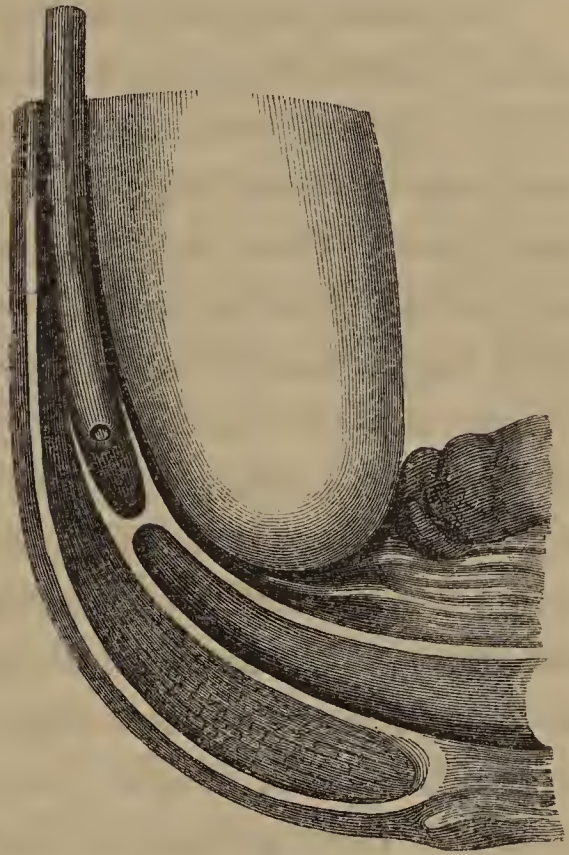
A good deal of the knowledge of the pathology of stricture we possess is acquired by the touch, and by inquiring into the history of the cases as they occur. We know by the instruments we use to cure strictures, that some are irritable, others not so; some soft and yielding, others hard and unyielding; and by an external examination we can in many instances ascertain their extent, and also their consistence. Such information can only

be acquired by the practitioner who has educated his touch, and who has registered in his mind the different sensations communicated to him through instruments while treating strictures. By this we may learn the progress, changes, and extent of strictures. At first, like all newly-formed parts, they are soft and vascular; after some time they become firmer, and yield more slowly to an instrument, while those of long standing are often found as hard as cartilage. The changes I have mentioned take place sooner in some cases than in others, and from these alterations we can account for the changes which occur in the symptoms of stricture. The stream of urine, which at first is not much altered either in size or shape, in time assumes a great variety of appearances, becoming very small, round, or twisted; in some cases forked or scattered; while in very bad cases there is no stream whatever, but the urine escapes in drops: this latter almost always indicates a distended bladder. The effort which the bladder has to exercise to empty itself, varies also greatly during the progress of strictures. As long as the stricture is soft, very little exertion, additional to what is natural, is required; but when the stricture becomes hard and unyielding, with a small opening in it, then the force must be great; it is very distressing to the patient, and, when of long standing, hernia, prolapsus ani, and hæmorrhoids are apt to follow.

Strictures are not limited to any particular extent, nor to any particular tissue of the urethra; we meet with some not more than a line in breadth, while we find others extending from the external orifice to the prostatic portion of the canal. The reader will find these remarks verified by consulting the drawings in the accompanying plates, all of which have been the results of *post mortem* examinations.

The simplest form of stricture is that described by John Hunter: he resembles it to a piece of pack-thread tied around the urethra. This stricture does not, in general, encircle the canal; it occupies only the sides and inferior portion, assuming

a crescentic shape. We recognise such stricture in practice by the circumstance, that as the instrument passes over the obstruction, the sensation of a jerk is communicated to the operator, and the same is felt by the patient. The accompanying diagram shows a stricture of this kind. Sometimes, owing to inequality in the thickness of this description of stricture, a difficulty is experienced in passing an instrument through it. Plate II. fig. 1, represents another stricture, limited in extent, but much broader than the lineal one; we meet with this kind, I think, more frequently in our practice than we do the former; and, when not of very long standing, it can be removed in a moderate space of time.



These two descriptions of stricture may be said to be superficial, compared with others; the mucous membrane and submucous tissue are the textures engaged, beyond which the disease does not extend. Indeed the lineal stricture appears sometimes as if it were produced by a plait or fold of the mucous membrane, which becomes firm; and the best marked specimens of this kind of stricture are to be found in the membranous portion of the urethra. I have under my care at present a gentleman with a stricture seated in this portion of the urethra; it is, however, rather complicated, and, what is not usual, it extends into the bulb. The case is a bad one, and has been much neglected; there exists a good deal of thickening and hardening about it; the aperture is very small, and when I get an instrument into it, I feel a small eminence, not

much larger than a millet-seed; against this the point of the bougie hitches, and on withdrawing it I find the plaster at the extremity of it turned up, forming a little prominence, about the size of a pin's head.

Strictures seated in the corpus spongiosum urethræ, are frequently found engaging a considerable extent of the canal. In Plate I. fig 1, a specimen of a stricture in this part is shown; its walls are thick and hard; the passage through it is very small and equal. There being no projections, a curved instrument is, generally, not applicable to these cases, in consequence of their length, and owing to the fact that they usually are found in the straight part of the urethra. A well polished gum-elastic bougie, well oiled, and properly adapted to the size of the aperture in the stricture, will pass freely, but with the sensation of a good deal of friction. When we withdraw the instrument, we are surprised to find it quite dry. The thickening of the mucous membrane lining the stricture, and the suspension of its natural secretion, cause, I imagine, this sensation of friction. Some authors say that the mucous membrane has no share in the formation of stricture, and will be found in its normal condition; with this statement few, I think, will agree.

To cure the kind of stricture I have last mentioned, or even to afford relief, must be the work of considerable time. The deposit in the cells of the corpus spongiosum must be absorbed; the hardened walls must be rendered soft and pliable, their elasticity restored, and the natural size of the canal re-established. If in our treatment of a case we are so fortunate as to effect such changes, the patient will enjoy all the comforts of a free passage for the urine, and, feeling himself so much at ease, will probably absent himself before the practitioner has authorized him to do so, but will return, at the end of a few months, as bad, if not worse, than he had at first been found.

To prevent relapses in strictures (all are liable to return when the treatment is discontinued too soon), occasional ap-

plications of an instrument for a long time after all symptoms have been removed are absolutely necessary. The superficial strictures will not require so long a continuance of the introduction of instruments as the deep-seated; but strictures such as I have last described require the occasional application of a bougie for months afterwards, sometimes, perhaps, for the patient's life, particularly if the case does not admit of complete cure in the first instance.

This stricture represented in the reduced drawing, Plate I. fig. 1, and which has just engaged our attention, was two inches in length; but we meet with strictures of this family much longer and more complicated. Cases occur in which the walls of the stricture are unequally thick, causing a tortuous course through it, and the mucous membrane, especially in very old neglected cases, becomes exceedingly rough. I can compare this roughness to nothing better than to a nutmeg-grater, and this hardened and contracted portion of the urethra to whipcord. Sometimes we meet in these cases with one, two, or more small, hard tumours, which are caused by a diseased condition of the lacunæ.

Plate I. fig. 2, shows a specimen of a case of twenty years' standing, in which the urethra, from the external orifice to the membranous portion, was in a state of contraction, which at length became so great that it could admit only a knitting-needle. In this sad condition a total retention of urine came on, and the patient was obliged to submit to the operation of tapping the bladder, after which operation he did not survive long, having been previously broken down in health by urinary hectic.

Strictures which occupy the entire length, or nearly so, of the urethra, and are accompanied by a disorganization of all its textures, must have been the result of extensive and neglected inflammation. The following case may be used in illustration:—A young gentleman, affected with gonorrhœa, was directed to use a strong injection of nitrate of silver at an improper stage of the disease; it caused high inflammation, swelling, and

tension of the entire penis. He made water with great difficulty and excessive pain, and there was a discharge of bloody serum. When the inflammatory action yielded to medical treatment, a profuse puriform discharge took place, and the mucous surface of the urethra, as far as could be seen through the external orifice, presented a granular appearance, resembling the palpebral conjunctiva in purulent ophthalmia. As the discharge lessened, the granular bodies became pale and small; all pain in the act of emptying the bladder soon subsided, but the stream of urine was very small. I now passed a No. 2 bougie, and continued the use of a bougie for nearly two months, gradually increasing the size, until I arrived to about No. 8. By this time the penis had become soft, and the patient's condition was greatly improved. He was now obliged to leave town, but I impressed on him the necessity of continuing the use of a bougie, which he could by this time pass for himself. I have little doubt, had this case been neglected, it would have ultimately become similar to the one just described.

I have given a description of extensive strictures in the spongy portion of the urethra, but they are not always extensive; we frequently meet with strictures situated in this structure limited in extent: I have met with some not more than half an inch in length, and which presented to the touch externally a body not larger in size than a filbert. Plate I. fig. 3, is a drawing of a transverse section of the penis immediately anterior to a stricture; no traces of the cells in the spongy portion of the urethra are to be seen, they have been effaced by an effusion into them of coagulable lymph. When I made this section the part was of a yellowish colour; the orifice of the stricture was remarkably small and round, and was surrounded by a mass of what was at first soft lymph, but had become in time a firm, unyielding substance: it was not more than an inch in length, for I could feel distinctly, by an external examination, both its extent and consistence. I did not see the poor sufferer, the subject of this morbid specimen, until very shortly before his death. Plate I.

fig. 4, represents a transverse section behind the same stricture: it shows the urethra in its natural position, with its sides nearly in contact, and not much dilated. This stricture was about five and a half inches from the external orifice. In Plate III. fig. 3, is to be seen the orifice of a stricture which is not small, compared with many strictures, but is remarkable for its shape, being transverse and unequal.

We meet with obstructions in the urethra of a very different character from what I have described, namely, a white, firm cord or cords extended across the canal, and attached only at its or their extremities. This is called the bridle stricture. In Plate II. fig. 2, there are two white bands stretched across the urethra. In Plate III. fig. 2, there are several white cords forming a plexus behind a long narrow stricture, and this is unusual to meet with where the urethra has undergone dilatation. I had in hospital for a long time the patient from whom this drawing was taken. The stricture anteriorly being very small, I was obliged to use a small-sized bougie, but could never succeed in introducing it into the bladder. The sensation communicated to the instrument was such as I never felt before or since; as I moved the point of the instrument towards the bladder, it gave the sensation as if its point entered a number of cells. I could not account for this until I had an opportunity of examining the parts after the death of the patient. By looking at the drawing the reader will see that the bands form a plexus, and lie close to the sides of the urethra; they could have given no opposition to the flow of urine from the bladder, but the onward passage of an instrument was obstructed, because the point hitched against one of these and raised it up like a valve. It was this that caused my failure in introducing an instrument into the bladder. I did not see this case until irreparable mischief had been done by the progress of the disease. There was a chronic abscess in the corpus cavernosum of the penis, and the bladder was extensively sacculated. He never had retention of urine, but emptied the bladder in a singular manner.

When the desire to make water came on, he got into the erect posture, and with a good deal of difficulty passed a little urine in a very small stream; he then knelt down, and pressed his forehead against the ground, thus forming an inclined plane from the pelvis downwards, and a second flow of urine came. The urine passed at the second effort was what was contained in the cyst, which was like a second bladder. Bridle strictures, as they have been called, have been noticed by several authors. Mr. Sharp, in his *Critical Inquiries*, mentions the case of a patient who died of retention of urine, and after death a white cord was found stretched across his urethra. In Alexander Morgagni's work notice is taken of this kind of stricture. I once saw, about an inch from the external orifice, a white septum stretched across the urethra with a hole nearly in the centre of it. I divided it with a bistoury, and directed a piece of a bougie to be passed occasionally, to prevent it uniting. Strictures at the orifice of the urethra are rather uncommon. I saw once a stricture of the orifice while forming,—at least, I may say, at the commencement of its formation. A gentleman some years ago called upon me complaining of a gleety discharge, the remains of a gonorrhœa. On examining the penis, my attention was attracted to a remarkable alteration in the orifice of the urethra; it was circular and thickened, and a red areola, which extended some distance on the glans, surrounded it. I directed a wash and some internal medicine, but he being obliged to leave town, I did not see him again for several months. On his second visit to me, I recognised a very great change; the orifice of the urethra had become very small, hard, and of a whitish colour; the hardness could be felt extending into the glans. He experienced great difficulty and pain in passing water, the stream of which was exceedingly small and round; and the stricture was so tight and unyielding, it would not admit an instrument larger than an ordinary probe.

Strictures at the orifice of the urethra cannot generally be cured by the same means we employ to remove them in other

parts of the canal. The operation proposed by the late Mr. Colles is a certain cure, and is easily performed : for a description of it I refer the reader to his work on the Venereal Disease.

When we have opportunities of making *post mortem* examinations of strictures of long standing, many morbid alterations and changes of structure are to be seen behind them, while anterior to the strictures scarcely anything worthy of notice is to be observed, except, perhaps, an increase of vascularity, which condition often exalts the sensibility of the part, so much as to make a bougie, or any other instrument, obnoxious to it; the progress of cure is thus retarded. Lunar caustic, slightly applied two or three times to this part, will remove the increased sensibility, and will allow the treatment of the stricture to go on satisfactorily. The morbid alterations that take place behind old strictures arise from interruption to the flow of urine from the bladder; and when the bladder is obliged to exercise much force in performing its functions, the entire urinary system, the urethra, prostate gland, bladder, ureters, and kidneys, will in time become diseased. The urethra behind such strictures as afford much opposition to the flow of the urine is frequently found dilated, particularly when the stricture is seated in the anterior part of the canal: the dilatation is often observable while the patient is forcing to pass water. Advantage should be taken of this fact in cases of retention of urine, by making an incision into the most prominent part of the dilatation, and thus do away with the necessity of performing that serious operation, tapping the bladder. Some years ago a patient was brought into Dr. Steevens' Hospital, labouring under retention of urine from a stricture. Every attempt to relieve the patient by instruments failed. On examining the perinæum a tumour of an oblong shape, and with a distinct fluctuation, was discovered behind the scrotum; this tumour was opened with a lancet, and the urine flowed out rapidly and freely through the incision. After such an operation we should then pay attention to the stricture,

which will probably be removed sooner than if it had not been performed. Opening the urethra behind obstinate strictures is strongly recommended by some authors as an expeditious assistance to the method of curing them. After the stricture is removed the opening which was made in the perinæum will heal. The drawing, Plate III. fig, 1, shows a very remarkable, and, I believe, a very unusual situation for a dilatation of the urethra to be found. I am indebted to Dr. R. W. Smith for it. The preparation belongs to the Richmond Hospital Museum, and the description of it which follows is taken from the Case Book belonging to that institution. It is represented of the natural size.

“A man aged 36 had stricture of the urethra, extending from the orifice for about an inch along the canal. Behind the contraction the urethra is dilated into a sac capable of holding a walnut; and upon the under surface of this sac an opening, through which the tips of three fingers might be thrust, leads into a pouch the size of a small orange, in fact a kind of secondary bladder. It bears no inapt resemblance to an aneurismal sac. The bladder in the recent state was intensely inflamed; the lining membrane of a deep red colour, and covered with ecchymosed spots.”

In dilatations of the urethra many morbid appearances present themselves in different cases; in almost every case marks of chronic inflammation exist in the dilated part; and it is more than probable that the discharge which accompanies some strictures, and which constantly continues until the stricture is removed, comes from this place. Depositions of lymph are often to be seen producing thickening and inequality of the surface; sometimes patches or stripes of ulceration are to met with, which lead at times to formidable consequences, namely, abscesses in the perinæum, and, what is still worse, infiltration of urine into the cellular tissue of the perinæum, scrotum, penis, and adjacent parts. I have also seen the entire of the dilated urethra coated over with

phosphatic deposits. In the accompanying wood-cut is delineated a small portion of the urethra, showing a complete disorganization of the mucous membrane; it is changed into a firm whitish substance of a fibrous appearance. This change of structure extended from behind the stricture to the bulb. The stricture in this case was the result of the loss of the glans penis from chancre; the subject of it died of hæmorrhage from the bladder and kidneys.



The prostate gland does not always escape in strictured patients; we find at times the whole gland enlarged, at other times one lobe only engaged. When merely a simple enlargement of the prostate has taken place, as soon as the stricture is removed the gland will generally be restored to its natural condition; but if abscesses have formed in it, the disease, being more complicated, will occupy a longer time before recovery takes place. The prostatic ducts are very often found greatly dilated: Plate I. fig. 1, and Plate II. fig. 1, show this very well.

The urinary bladder, in strictured patients, undergoes many morbid alterations when that viscus is obliged to make much exertion to relieve itself; its mucous membrane becomes thickened and thrown into folds of various shapes: good examples of this are to be seen in some of the annexed drawings. Chronic inflammation of the mucous membrane in different degrees is almost always present; we know this from the quantity and quality of the secretion passed from the bladder during life. When the chronic inflammation is not much, the discharge is thick, ropy, and as tenacious as bird-lime, and is semitransparent; but on an increase of the inflammation occurring, the discharge becomes opaque, less tenacious, muco-purulent: the quantity is often great, and causes much additional suffering to the patient while passing water. Inflammation of this membrane becomes at times very acute; marks of this are to be seen after death. In our *post mortem*

examinations we often meet with a great increase of vascularity in the mucous membrane, the vessels of which are sometimes found enlarged, tortuous, and turgid; frequently they present evident marks of extravasation. In the drawing, Plate III. fig. 2, there were signs of high inflammation and much ecchymosis; in some places the effused blood was in small spots like the petechiæ of fever, in other parts in patches as large, each, as a silver sixpence. I have a drawing which shows extravasation of blood diffused over the entire surface of the mucous membrane, which was of a very dark colour, and there was no appearance of distinct blood-vessels; on the inferior surface there was a further extravasation of blood which detached the membrane almost completely from the walls of the bladder. In this case the wretched sufferer was obliged to use powerful exertions to expel the urine; he strained and forced, like a woman in labour, for hours, nothing but mucus coming off, and when it ceased to flow, the urine dribbled away, bringing some comparative ease to the afflicted patient.

The next thing to attract our attention is, thickening of the walls of the bladder and diminution of its capacity. In some of the drawings we see good exemplifications of this. In Plate II. fig. 1, which also represents a simple stricture, with extensive dilatation of the urethra behind it; the capacity of the bladder is remarkably small. The thickening of the parietes of the bladder can be accounted for by the force that viscus is obliged to make to expel its contents; for all muscles that are called upon to exercise much constant action are increased both in bulk and strength as the result. In the case of the bladder there is probably some infiltration of lymph which adds to the thickness. Another consequence of straining to pass water on the bladder, is a protrusion of the mucous coat through some of the interstices of the muscular fibres, by which sacs or pouches are formed; sometimes we meet with three or four, at other times one large one. The large sac I have already alluded to, at page 307, was situated between the bladder and rectum; it could be felt

by passing the finger into the rectum. The bladder is at times as unaccommodating in allowing the ingress of urine from the kidneys as the stricture is in preventing the bladder to get rid of it; in consequence of which we find the ureters and kidneys frequently diseased. One or both ureters are frequently found dilated; when one only is distended, that one becomes greatly enlarged, and acts as a secondary bladder: the dilatation extends into the pelvis and infundibulæ of the kidneys. There are some preparations in the Museum of the College of Surgeons, showing absorption of the entire glandular structure of the kidney, the place of which has been supplied by membranous pouches which are divided into cells by septa, the cells communicating with each other. The urine is occasionally interrupted in its course from the kidneys by other causes than those I have mentioned: for instance, by a calculus in, or a stricture of the ureter. The latter is, I believe, a very unusual occurrence; I met, however, with a case of it some years ago, which, though it may be a digression, I shall relate. A man was brought into Dr. Steevens' Hospital in a comatose state, the person accompanying him having stated that the patient had not passed water for four days. The abdomen was tumid. I introduced a catheter with great ease into the bladder, but scarcely any urine came away. He died in a few hours, and on the following day I made a *post mortem* examination. On cutting into the abdomen some serum was found in its cavity, and several convolutions of the intestines were adherent by the effusion of recent lymph. A tumour was discovered situated behind the peritonæum; it projected towards its cavity, and when cut into a quantity of offensive urine gushed out, thus exposing the entire cyst, which appeared to be formed by the surrounding cellular membrane. The ureter was much dilated, and an ulcerated opening into its cavity was discovered; through this opening the urine had infiltrated into the surrounding cellular membrane, and thus a cyst was formed. I introduced a probe into this opening; I could not make it pass

downwards, but it passed freely upwards, towards the kidney. I now removed the kidney and uréter. The kidney was large, soft, pale, and its pelvis greatly distended. On slitting up the ureter I found in it two strictures in the shape of ridges, evidently formed by mucous membrane, thickened by lymph; they had nearly obliterated the inferior portion of the canal. The upper part of the ureter was dilated considerably. The bladder was nearly empty, and I may be asked why was this so? Sympathy, perhaps, may have been the cause of it; but this solution of the question will not always hold good, for there are many well authenticated cases in which one kidney has acted vigorously, the other being rendered completely incompetent by disease.

There is another curious circumstance connected with this case, which resolves itself into a question difficult to be answered,—why did not the urine produce the same deadening effects on the cellular membrane in this instance, as it does when infiltrated into the cellular membrane of the perinæum, scrotum, and penis? We find that the ureters suffer from other diseased alterations besides dilatation. The chronic inflammation, which so generally affects the lining membrane of the bladder in cases of old strictures, is often continued to the mucous membrane of the ureters, there producing the same actions and the same effects as it does in the bladder; from the ureters this chronic inflammation extends through all the ramifications of the tube into the kidneys, and thus many morbid changes in these important organs are the result. It is at times difficult, if not impossible, to detect diseases in the kidney, particularly in their early stages; indeed there are even cases on record in which disease of that organ was found far advanced without any decided notification of its existence during life having been manifested. They appear disposed rather to simulate the complaints of other parts than to expose their own maladies; for instance, incipient psoas abscess, affections of the liver, but more frequently functional derangement

of the bladder and urethra, evinced by a frequent and irresistible desire to pass water; and sometimes pain in or about the glans penis, which frequently causes suspicion of the existence of a stone in the bladder. In *post mortem* examinations of such cases as the last, one or both kidneys have been found completely disorganized, and the bladder and urethra free from any marks of disease.

While we are treating urinary diseases, such as strictures or diseased prostate glands, we should look sharply to, and watch closely the renal glands; and if the patient complains of pain in the region of these glands, which pain occasionally proceeds in the direction of the ureters, and that this is increased by a sudden jerk from the motion of a car, or from a false step, I think we may then say, without having recourse to analysing the urine, or without looking to the state of the digestive organs, that all is not right with the kidneys, and the sooner we direct our treatment to them the better.

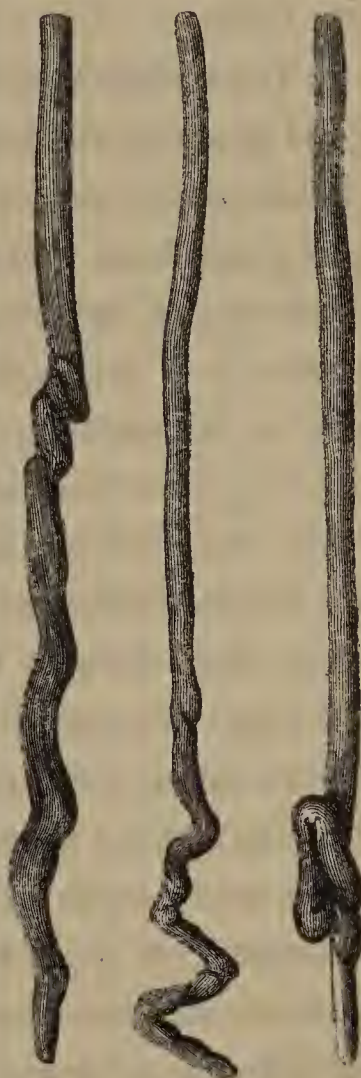
I will not proceed further in considering affections of the kidneys; it would be going beyond the object I had in view in sending to the profession these few observations, which were written mainly with a hope of exciting a spirit of inquiry into the pathology of organic strictures,—a subject very much neglected. There are few diseases which have not undergone close examination, and pathological anatomy has been most successful, and has amply repaid the labours of pathologists. I am sorry I cannot say the same for strictures of the urethra. It must be acknowledged that in these diseases the number of *post mortem* examinations are comparatively limited, and this fact is urged by some as an excuse for not exerting themselves. But if our opportunities in this respect be few, we should be more energetic, more diligent, and more watchful, in looking for cases, which, when obtained, we should turn to the very best account. I have often seen *post mortem* examinations of strictures of the urethra very slovenly conducted, and turned to little account; the investigators having gone away, apparently satisfied, with-

out having, I am certain, added anything material to their knowledge of these diseases. I am not, I believe, over-zealous about the necessity of studying the pathology of urethral stricture, for on it depends a judicious, safe, and successful treatment; and I may further add, that without such information of the disease in question we cannot form a sound prognosis.

It must be evident to every surgeon who has studied the pathology of strictures, that the same mode of treatment is not applicable to every stricture, but must be modified by its situation and extent, by the tissues engaged in its formation, and by its consistence. I believe there are many practitioners who do not interest themselves on these points, but who use the same kind of instrument in every case. I can say for myself that I find, in my practice, use for almost all the instruments which have, from time to time, been invented for the removal of strictures. The plaster bougie, which is a very old instrument, is both safe and useful; it is a great favourite of mine, and the more I use it the more I feel convinced of its value. It is applicable in cases of recent strictures, before they become hard and unyielding; I have succeeded with it in recent strictures even at or behind the bulb. In general, however, this description of instrument is more suitable to strictures anterior to the bulb. When we use one of a middle size we should give it the curvature of a catheter, and when well made on linen it will retain it during introduction, if we do not employ too much pressure. A small-sized plaster bougie must be used straight; such an instrument is very apt to bend on itself when it meets with resistance; and if the pressure on it be continued it becomes twisted into a spiral shape, or coiled up into a knotted mass: in this shape there is often difficulty in withdrawing it, which is attended with a good deal of pain, followed by the discharge of some blood. I think it not difficult to know whether a small bougie is passing on or bending. When the bougie is shortening from having passed through the stricture,

and advancing towards the bladder, there will be a total absence of the feel of resistance at its point; but if the shortening of the instrument be caused by its bending, then the more it shortens the greater the resistance becomes. We see, in the annexed wood-cut, three bougies greatly altered by the effects of pressure. The gum-elastic bougie answers very well in long strictures, and in such as do not require a curved instrument.

We meet, at times, with strictures through which we are able, after some weeks, to make a passage sufficiently large to admit a No. 4 or 5 catheter, but beyond this we advance very slowly. If, under these circumstances, our patient would submit to lie in bed with a gum-elastic catheter in the bladder, the cure would go on rapidly and satisfactorily; and on removing it, after the lapse of three or four days, we will be surprised to find that it comes out so much more freely than it went in, and the stricture will now admit a much larger instrument. At each time you take out the instrument you will be able to replace it by a much larger one; and in this way, if the presence of the instrument in the bladder does not cause pain or irritability of the organ, the entire stricture will be removed in perhaps three or four weeks. In such cases it is particularly necessary to pass an instrument occasionally, to prevent a return of the disease. The catgut bougie is an useful instrument: I employ it very often. The metallic catheter and sound are useful instruments in judicious and practised hands; many old and obstinate strictures, in which every other instrument would fail, are cured by them. We have great command over these instruments; by moving them be-



tween our fingers we can direct the point to any part we wish, and in this way we succeed in passing through strictures of unequal thickness, or where there are more strictures than one, whose orifices do not lie opposite each other. These instruments are most essential when the strictures are at or behind the bulb.

The catheter and sound, though capable of doing so much good when in safe hands, are, I am sorry to say, made weapons of destruction sometimes. It is surprising, after all that has of late years been written against the employment of force in the treatment of strictures, that it should be still put in practice by a few; it is not, however, done by any well-educated surgeon. Rigors, hæmorrhage, and false passages, are the consequences of using force with strictures. Rigors, however, we meet with where no violence has been employed, and in some cases they are present before any treatment has been adopted. The cold stage that attends the febrile paroxysm is often severe; the hot stage is generally short; but the sweating stage is profuse, often continuing for many hours, sometimes for days. Great debility follows these attacks. I have met with cases in which there was a cold and a hot stage, without being followed by sweating; in these a second cold stage comes on without going further. In cases in which there is a predisposition to rigor, we should give a large dose of opium before we use an instrument; and if this does not succeed in preventing the occurrence of the attack, opium should be administered both before and after its application. If this plan fails we must leave off the local treatment for some time, and attend to the patient's general health. Patients who have suffered several attacks of rigors are pale, their countenances haggard, and their strength reduced; these persons will be improved by good air, generous diet, wine, and tonic medicines: when this plan has restored the health of the patient we may return to the local treatment.

Hæmorrhage from the urethra, after the use of instruments, is rather unpleasant; it alarms the generality of patients, and

they are inclined to attach some blame to the surgeon for it. Blood sometimes comes in large quantities and rapidly, though the surgeon be not in fault; in such cases the urethra must be unusually soft and vascular, and its vessels varicose. A gentleman called upon me some years ago about a stricture, which, he said, was very near the bladder; he addressed me thus: "I came, Sir, to know can you do anything for me without using an instrument?" I asked him what objection he had to its use? He replied: "A profuse bleeding always follows." I was vain enough to think I might apply an instrument without drawing blood, and on intimating to the patient my wish to try it, he consented, provided I would use a plaster bougie; at the same time he said, "I know the consequence." I introduced into the urethra a soft plaster bougie, well oiled, and it went on without any opposition; when I arrived at the bulb I perceived blood flowing along the sides of the instrument, on the withdrawal of which blood gushed out in a large round stream: it stopped almost immediately. I never met with a similar case before or since, nor do I know any one who has. In general, bleeding from the urethra does not continue long; if it should be disposed to continue, cold applications and rest will generally arrest it; pressure may become necessary, and when employed, it should be made upon and behind the point from which the blood comes. When bleeding from the urethra is the result of violence,—for instance, when extensive false passages have been made,—it is often alarming, and is difficult to control; and what complicates the case is the regurgitation of some blood into the bladder.

When we visit pathological museums we often see specimens of false passages caused by rude and unskilful hands. In the Museum of the College of Surgeons there are some remarkable preparations of false passages. I shall mention two, and I believe it would not be easy to match them. In one the catheter was forced out of the urethra anterior to the stricture, and by some extraordinary effort was made to re-enter it behind the stricture.

In the other specimen there are four false passages, three of which were made through the prostate gland into the bladder; in the fourth the catheter was forced through the bulb, and passed between the bladder and rectum. I saw one melancholy example of this last kind of injury, which terminated fatally in forty-eight hours: a silver catheter had been forced through the bulb of the urethra, and had passed on between the bladder and rectum. The feeling as of something giving way, the shortening of the instrument, the capability of depressing the handle, and the freedom with which its point could be moved, were circumstances which made the operator suppose that the instrument was in the bladder, and that the absence of urine arose from the eyes of the catheter being blocked up with coagulated blood or mucus: on withdrawing the instrument, however, the eyes of it were found perfectly free. Whenever false passages, no matter how limited, have been made, the local treatment should be suspended for some time to allow the breach to heal.

Strictures are said to be cured by dilatation; but if the instrument which produces their dilatation did nothing more, strictures so treated would never be permanently cured, for as soon as the dilating power would be removed the stricture would return to its previous state. We should not, I think, be so mechanical in our notions as to the cure of strictures, but recollect that the catheter, sound, or bougie, whichever of these instruments is used, is brought in contact with, and presses upon, living organized parts, which pressure, acting as a stimulus, excites the absorbents into action, and thus the deposits which formed the stricture are removed, and the natural caliber of the urethra becomes restored. We meet at times with strictures through which the very smallest instrument cannot be passed, though some stream of urine escapes; these are sometimes cured by well-regulated pressure exercised on their anterior extremity by the bougie or catheter. The practice of some is to pass down to the stric-

ture a good-sized gum-elastic catheter, and to retain it there by means of bandages. To maintain, however, constant pressure against the stricture by this mode is almost impossible, owing to the great mobility of the parts; and I have seen, as a consequence of the instrument pressing upon the sound part of the urethra, instead of against the stricture, inflammation and abscesses in the perinæum. I have effected some cures of impassable strictures by introducing a tolerably large gum-elastic catheter or bougie (the selection, as to its shape, depending upon the situation of the stricture), and pressing it against the stricture for fifteen or twenty minutes every second day. The process of cure is, I must acknowledge, a very slow one; but if a patient objects to it on this ground, he must either submit to an operation or abandon himself to a life of misery. When a cure is effected by pressure made against the face of a stricture, we are indebted here also to the absorbents for it. It is a well-known fact that newly-formed parts have not the same power to resist stimuli as the original parts had; and it is owing to this law in the animal economy that the absorbents are such successful agents in curing strictures. We have in the case of recently healed ulcers a familiar example of the want of power possessed by newly-formed parts to resist the application of stimuli. When a stimulus is applied by accident or design to such ulcers, the absorbents will, in a few days, destroy what has been the work, perhaps, of months.

Lunar caustic is now very little employed for the cure of organic stricture. It is certainly capable of doing much mischief when indiscriminately used: rigors, hæmorrhage, retention of urine, inflammation of the urethra, and abscesses, being the result; it may, however, be used with advantage when a proper selection of cases is made. It is often of great utility in removing the spasm, which so frequently impedes our treatment of a case; it also subdues that morbid sensibility which we sometimes meet with anterior to the stricture, and which causes a delay in the progress of the cure. Two or

three applications of it will, in general, remove these two unwelcome visitors. There are some strictures limited to a very small extent, which may be cured by the application of caustic, and I think it would be of use in the bridle stricture; but I know of no diagnostic means by which that can be distinguished from other obstructions in the urethra. While we are interested about the local treatment of stricture we should not forget the constitution. Few persons labour under stricture for any length of time without becoming delicate and being easily put out of order. Some patients suffer from dyspepsia and derangement of the bowels, others are affected greatly by atmospheric influence; the latter feel every change of weather, and cold or wet, particularly in the feet, will often suddenly aggravate all their symptoms. The cure of strictures generally goes on more steadily and more uninterruptedly in summer and autumn than in winter or spring. Before commencing our local treatment of a case of stricture, we should lay down general rules for the conduct of the patient. We should regulate his diet, and should point to the necessity of caution in eating or drinking anything that might disagree; this is particularly required if the patient be dyspeptic. Attention to the bowels, warm clothing, and the avoidance of over exercise, are observances the necessity of which should be impressed eagerly upon the mind of the patient. I have not entered into the details of the treatment of stricture, because it was my intention at the outset to make only a few remarks on that subject as far as it is applicable to the strictures I have described. I find, however, I have insensibly gone somewhat beyond my object.(a)

(a) The plates which accompany this paper were drawn on stone by Mr. Connolly; the figures, with one exception (Plate III. fig. 1), are reduced about one-half. The mechanical arrangements necessary in the plates has led to the description of the figures not being quite consecutive in the text.—
ED.

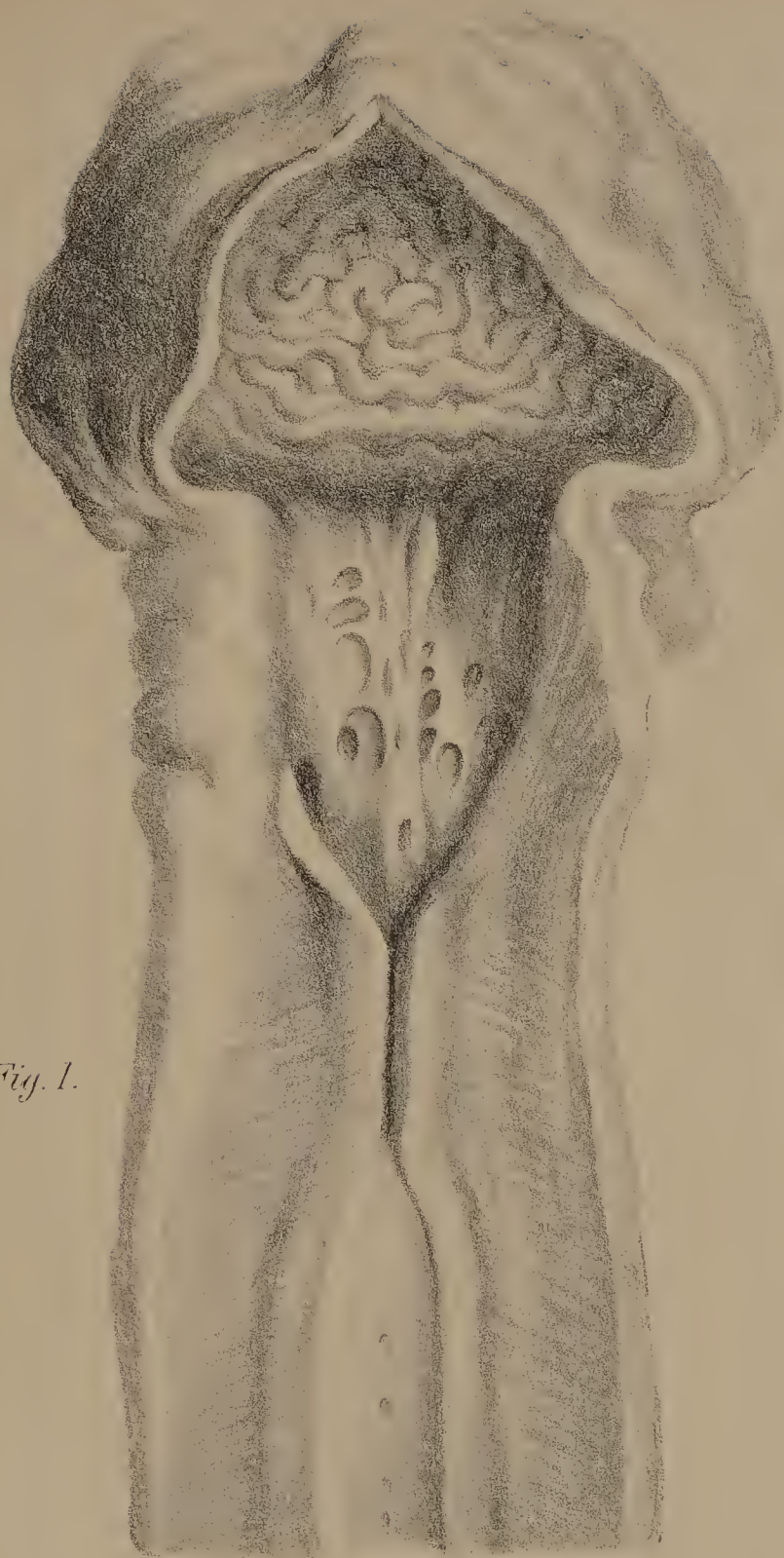


Fig. 1.



Fig. 2.



Fig. 4.

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Fig. 2

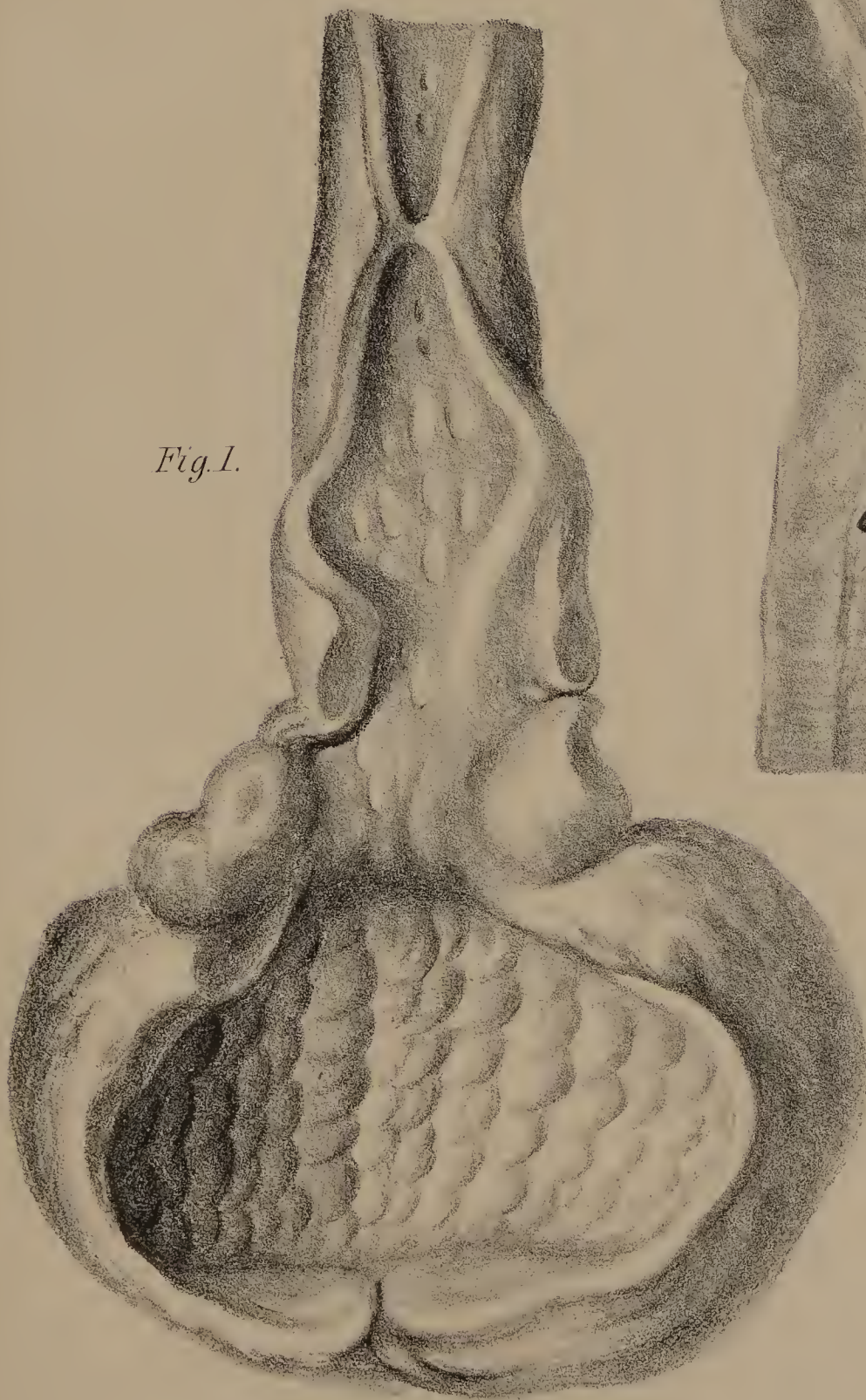


Fig. 1.

Fig. 1.

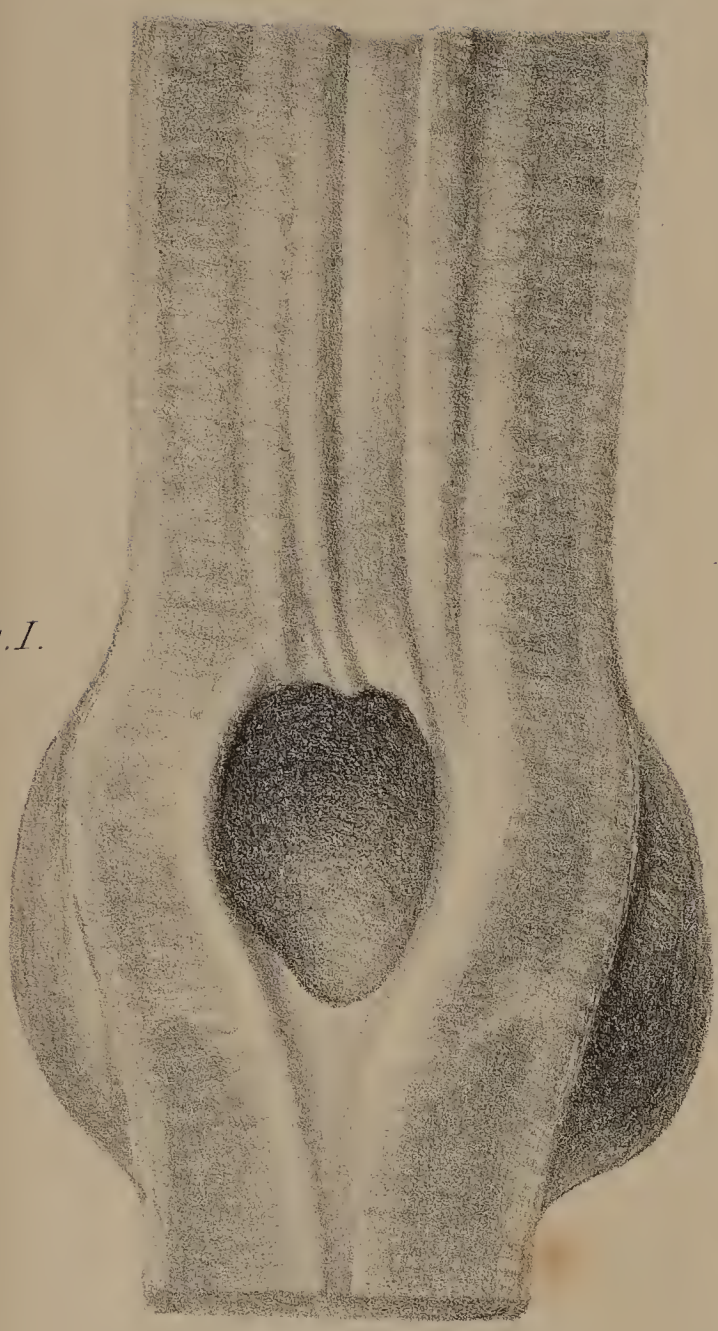


Fig. 2.

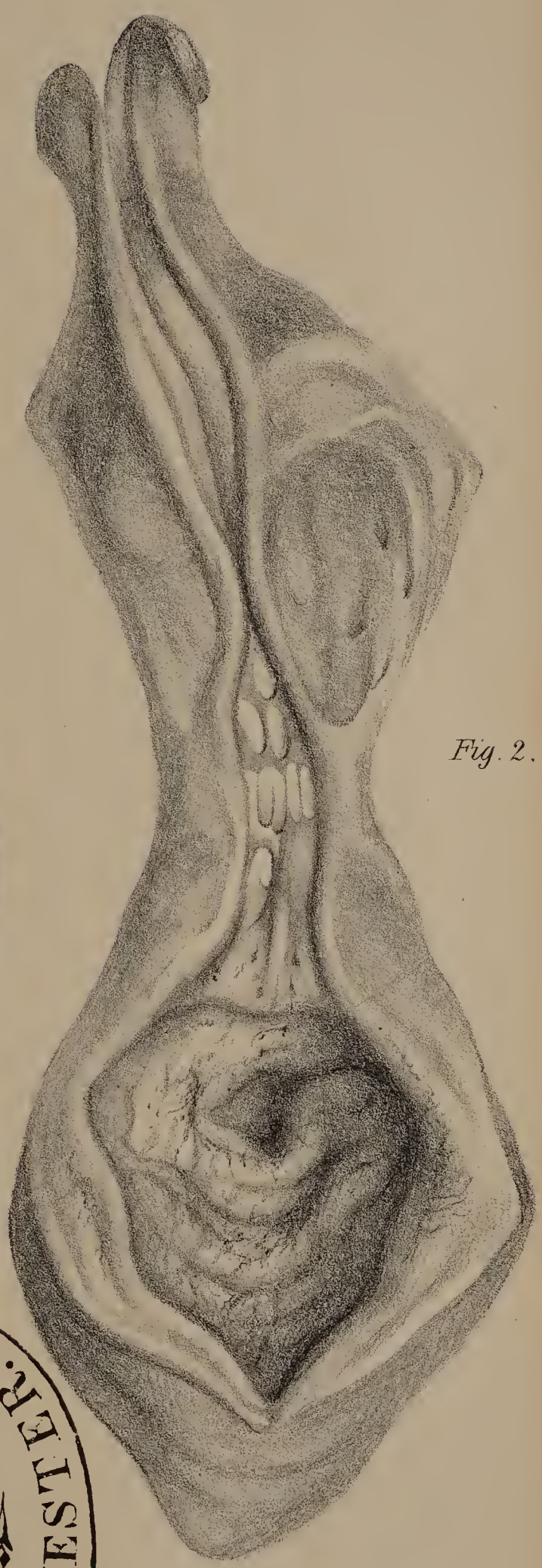


Fig. 3.



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ART. IX.—*Case of Strangulated Congenital Hernia in an Infant seventeen Days old, requiring Operation.* By W. FERGUSON, Esq., Professor of Surgery in King's College, London.

[Read at the Royal Medico-Chirurgical Society of London, Jan. 12, 1847.]

ON the evening of Sunday, the 8th of November, 1846, I was asked by Mr. Davidson, of Charles-street, Manchester-square, to see an infant patient of his labouring under strangulated hernia. The child was seventeen days old, and had been perfectly well until the evening of the 6th, when it suddenly became fretful; and from that time up to the period when seen by Mr. Davidson, about half an hour before he called upon me, its sufferings seemed to increase. The symptoms of strangulated hernia were these:—a painful tumour in the region of the left inguinal canal; swelling and tenderness in the abdomen; no evacuations from the bowels since Friday evening; and frequent vomiting in the course of the last twelve hours. The skin over the tumour was red and œdematous, and the slightest manipulation evidently caused great pain.

Mr. Davidson had tried the taxis in the warm bath with no good effect; and on applying my own fingers, I at once felt assured that, while there was little chance of reducing the supposed hernia in this manner, there would be great additional suffering, and possibly risk of doing serious harm. The indications seemed sufficient to warrant an immediate operation with the knife; and, as the parents at once assented to a proposal of the kind, I lost no time in putting it into execution. The little patient was held on a table by his nurse, and the operation was effected thus:—An incision, about two inches in length, was made along the most prominent part of the tumour, passing obliquely from opposite the opening in the fascia transversalis to within half an inch of the lower part of the scrotum. When the skin and subjacent cellular tissue was divided, a firm membrane, of a dark-blue colour,

which I took to be the hernial sac, was discovered, and cautiously opened. About a tea-spoonful of turbid serous fluid escaped, and on enlarging the aperture a portion of small intestine was immediately exposed. The opening was now increased, to permit the finger to be pushed in the direction of the stricture, and the testicle, partially covered by the gut, was then observed at the lower end of the hernial sac. The point of a director was next cautiously passed under the front of the neck of the sac; and a probe-beaked bistoury was used to make a slight notch in this part. The bowel was easily pushed into the abdomen, and the wound was then stitched and dressed in the ordinary way. The patient soon after went to sleep: in the course of three hours there was a copious evacuation from the bowels, and all suffering seemed to have ceased. The greater portion of the wound healed by the first intention; a slight film of slough separated from the surface of the testicle. In the course of a fortnight there was a firm cicatrix, with no apparent tendency to further protrusion; and the child is now thriving and in excellent health.

The incision in the skin bled very freely, owing to the inflammation present; and the tightness of the stricture had so far impeded the circulation in the cord and testicle that the veins were greatly distended. The colour of these parts was purple. The testicle was somewhat swollen, and, in appearance, not unlike a small sloe.

As regards the anatomy of the parts, this case of congenital hernia differs little, if at all, from what is familiarly known among surgeons. The testicle had not passed completely into the scrotum, as may be often remarked in congenital hernia; the condition being probably the cause of the vaginal prolongation of the peritonæum not closing.

It is the prevailing opinion, I believe, that inguinal hernia in an infant is usually congenital. This is not always the case, however: I have an example of very large protrusion of intestine in a boy only two years of age, wherein the dis-

inction between the tunica vaginalis testis and the proper hernial sac is clearly displayed; the condition being similar to that met with in the adult, in whom the peritonæal prolongation has been long closed up. Though it is interesting, in a pathological point of view, to know the distinctions between congenital inguinal hernia and the common kind, I am not disposed to think it of such consequence that, in an instance where an operation is absolutely necessary, the surgeon should be positively clear in his diagnosis as to the sort of rupture he is about to deal with. The same style of operation is required in either instance; and in cutting on the front of the neck of the sac to relieve the stricture, I believe it is easiest, safest, and best to make the incision directly upwards.

I trust that I need not apologise to the profession for having occupied some space in bringing under notice a case which, though seemingly of such familiar occurrence, has, it appears to me, some points of interest; and the very early age of the patient causes it to differ from most, if not all, analogous cases with which the profession generally is acquainted. I have never myself seen the operation for strangulated hernia performed on any patient under the age of puberty, excepting in this instance, and few surgeons have had occasion to use the knife in infants thus affected. Mr. Adams of Dublin(*a*), having operated successfully for strangulated congenital inguinal hernia on an infant eighteen months old, thought the case worthy of being recorded; and states, in his paper on the subject, that the only example of a successful proceeding of the kind which he has found recorded had happened to Mr. Long in St. Bartholomew's Hospital, in a child only fourteen months of age. Mr. Lawrence has referred to Mr. Long's case, as an instance wherein, at this early age, the hernia was not of the congenital sort, for the tunica vaginalis testis and hernial sac were quite distinct. Mr. Stanley, we are told by Mr. Lawrence, has ope-

(*a*) Dublin Journal of Med. Science, First Series, vol. ii.

rated successfully on an infant of seven months,—and here too the hernia was not congenital. Several other examples are referred to by Mr. Lawrence in his *Treatise on Ruptures*(a), where strangulated hernia had been present in very young subjects, some having died without operation, others having been operated on successfully, and one, a child of six months, having died of profuse diarrhœa in forty-eight hours afterwards. Mr. Curling has politely mentioned two cases to me: one occurred to Mr. Luke, in a child three months old; an operation was performed, the hernia was reduced without opening the sac, and the patient recovered. The other was an instance operated on with success by Mr. Hawkins, at St. George's Hospital, at the age of seven weeks. Mr. Laurence has given some particulars of a case which happened to Dupuytren: an operation was performed on an infant twenty days old, but the result is not mentioned. Among the various professional friends whom I have met recently, I have not found that any of them were acquainted with an instance of an operation having been performed at an age so early as that of the patient whose case I have here recorded. It is chiefly for the sake of eliciting more information on the subject that I give the case this publicity, and also to impart confidence to others who might hesitate to advise an operation on one so young.

ART. X—*Observations on certain Dislocations of the Elbow-Joint; with Cases.* By M. H. STAPLETON, M. D., M. R. I. A., Surgeon to Jervis-street Hospital.

HIPPOCRATES has left us many interesting observations upon dislocations of the elbow, from which we learn that he was not only acquainted with accidental luxations of that joint, as regards both bones of the fore-arm, but likewise with the dislocations of the head of the radius alone. From his time to the

(a) Page 79, fifth edition.

present day injuries of or about this joint have continued to interest the profession, on account of the difficulty which is often attendant upon their diagnosis, and the very unpleasant results likely to arise to the patient, should an error have been committed.

Although we are much indebted to Sir A. Cooper for his very elaborate work on Fractures and Dislocations, and by which he, in a great measure, led to the proper understanding of these accidents, still the diagnosis of dislocations of the elbow-joint is surrounded by considerable obscurity, as cases occasionally occur which differ in their form and symptoms from those described in his work. He specifies five varieties of dislocation of the elbow-joint:

1. Dislocation of both bones of the fore-arm backwards.
2. Both bones dislocated laterally.
3. Dislocation of the ulna backwards.
4. The radius dislocated forwards.
5. The radius dislocated backwards.

The classification of M. Debruyne^(a) I consider to be nearer the actual truth; it is:

Dislocation of both bones of the fore-arm.	1. Backwards.	{ Complete. Incomplete.
	2. Forwards.	{ With fracture of the olecranon. Without fracture of the olecranon.
	3. Dislocation of both bones of the fore-arm at the same time; the radius forwards, and the ulna backwards.	
	4. Outwards.	{ Complete. Incomplete.
	5. Inwards.	{ Complete. Incomplete.

Dislocation of the ulna backwards separately from the radius :

Dislocation of the superior extremity of the radius alone.	1. Backwards.
	2. Forwards.
	3. Outwards.
	4. Incomplete.

(a) *Annales de la Chirurgie Française et Etrangere*, Septembre, 1843.

The forms of dislocation of the bones of the fore-arm, in dislocation of the elbow-joint, described by Hippocrates(*a*), are :

Dislocation of the radius backwards.

Dislocation of the radius forwards.

Dislocation of the radius outwards and upwards.

Incomplete lateral dislocation of the ulna.

Complete lateral dislocation of the ulna.

Dislocation of the ulna backwards.

Dislocation of the ulna forwards.

In the classification of Sir A. Cooper we have no mention made of a partial dislocation of both bones of the fore-arm backwards. Prior to the time of Boyer(*b*) this form of dislocation was admitted by many ; he, however, denied its possibility, and expresses himself as follows upon this subject :

“Dislocation of the fore-arm backwards can never be incomplete. If the summit of the coronoid process of the ulna was not forced, by the effort which causes the displacement, beyond the transverse diameter of the articular pulley of the humerus, the latter, on account of the obliquity of its surfaces, would fall back into the sigmoid cavity of the ulna when the effort at displacement had ceased. The coronoid process is drawn by a similar mechanism into the fossa of the humerus intended for the lodgment of the olecranon process, if it shall have advanced beyond the aforesaid point.”

J. L. Petit(*c*) was not so dogmatic. He admits the possibility of a partial dislocation. “When,” says he, “the dislocation backwards is incomplete, and that the anterior eminence of the ulna rests posteriorly upon the most prominent part of the pulley of the arm bone, then, under such circumstances, the flexors are less tense, the extensors are less relaxed, and consequently the fore-arm is less flexed than in complete luxation backwards.”

(*a*) Hippocrates, vol. iii. p. 545.

(*b*) *Mal. Chir.*, tom. iv. p. 214.

(*c*) *Mal. des Os*, tom. i. p. 233.

Certain cases having fallen under my notice must plead my excuse for differing with so high an authority as Boyer, and induce me to follow the opinions of Petit, which are in accordance with those of Monteggia and Leveillé, and which are, moreover, confirmed by the observations of Malgaigne,^(a) who declares that the incomplete or partial dislocation is by far a more frequent occurrence than the complete. The description given by him is, "that the coronoid process of the ulna lies upon the inferior part, and a little posteriorly of the pulley or trochlea of the humerus; the fore-arm is scarcely at a third of its flexure; the olecranon process is an inch and a half behind the epitrochlea, but upon a horizontal plane perceptibly inferior to it; whilst, in the complete dislocation, the coronoid process of the ulna being lodged in the cavity usually occupied by the olecranon, the olecranon is found almost equally distant from the epitrochlea, and posterior to it, but upon a plane, and evidently superior to it."

CASE I.—*Incomplete Dislocation of the Ulna backwards.*

John Boyd, aged six years, was brought by his mother to Jervis-street Hospital on the 29th of November, 1847. She stated that the child had fallen whilst carrying a kettle of water on the previous evening, and complained very much, during the night, of pain in his left elbow. The child supported his injured arm with his right hand: it was at about a third of its flexion; pronation and supination were perfect. Complete extension was impossible, nor could the limb be completely semiflexed, and when attempted, the boy screamed out that his little finger was hurt. He had no power over the elbow-joint. The only account we could elicit from him was, that he slipped and fell, with his hand under him. There was no deformity on the external side of the joint; the head of the radius could be felt to rotate in its normal position.

(a) *Trait d'Anat.* tom. ii. p. 454.

On the inner and posterior part of the joint there was considerable deformity; the olecranon was thrown to the inner side, but on a plane inferior to the epitrochlea. On each side of the triceps there was an elastic swelling, but that on the exterior side was much the larger; the prominence in front was below the fold of the arm. There was scarcely any ecchymosis. Extension being made in the opposite direction, I pushed the olecranon forward with my thumb, and in about two minutes I suddenly bent the child's arm round my own, which acted as a fulcrum. The reduction was easily accomplished. The forearm could now be flexed to the fullest degree, and the child had the full command of the joint.

It was evident to all present that the radius was in its normal position in this case, and that the external condyle preserved its proper position with regard to the shaft of the humerus. The great pain in the little finger was produced by the tension of the nerve. It was not fracture of the internal condyle, as the fore-arm could not be bent to a right angle, nor the ulna made to resume its natural position. That there was a displacement backwards of the ulna cannot be disputed. Was it a complete or incomplete dislocation? I should say that it was incomplete, as the coronoid process was not thrown into the posterior fossa of the humerus. An interval of so many hours having elapsed from the occurrence of the accident until the child was brought for advice, the diagnosis would have been extremely difficult, were it not for his slight muscular development and the anæmic state of his constitution.

CASE II.—*Incomplete Dislocation of Radius and Ulna backwards, with Fracture of both Bones, in their middle Thirds.*

Thomas Phelan, aged ten years, was admitted on the 5th of August into Jervis-street Hospital. He stated that, while endeavouring to pick some sugar from a hogshead which was upon a dray, he mounted upon the wheel, but, seeing the driver return, jumped suddenly down, and fell upon his side; on get-

ting up he found his arm was very much hurt, and one of his companions pulled it until it cracked.

On his admission he was found to have fractured both bones of the fore-arm in their middle third. The limb was painful, and very much swollen.

On the 6th he complained of much pain about the elbow-joint. There was also considerable ecchymosis. He was very unwilling to permit any examination of the limb, as he had but recently suffered from a dislocation of his shoulder-joint. Leeches were applied to the arm, above the ecchymosed part, and a poultice over the joint. The leeches were repeated on the 12th.

13th. The pain being now somewhat abated, he permitted an examination. As he lay on his back, the fore-arm was pronated, and his hand rested on his abdomen, midway between the pubis and umbilicus. By pressing the finger over the situation of the head of the radius it was found to project more than natural, but could not be rotated, as the bone was fractured. The olecranon was thrown backwards, but on a plane horizontally inferior to the internal condyle; anteriorly and internally there was a round projection, as shown by the accompanying illustration.



16th. The reduction of the limb was effected in the following manner:—the patient was seated upon a low stool, with his arm placed across the back of a chair; extension was made by grasping the fore-arm above the seat of fracture, while an assistant pushed forward the ends both of the olecranon and radius with his thumbs, and made counter-extension by locking his hands on the front of the limb.

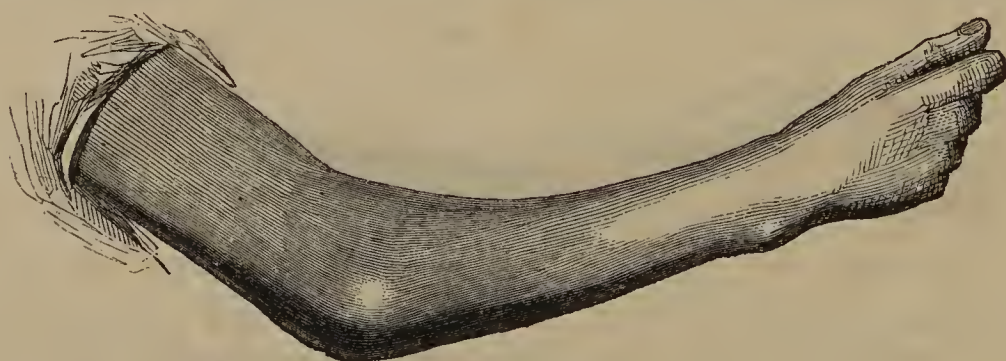
After about two minutes the joint was bent across the rail of the chair, and the bones returned to their normal position, which was satisfactorily proved by the limb allowing of perfect flexion and extension.

The arm was now placed in splints, and treated as the symptoms required. On the 3rd of September he was discharged.

CASE III.—*Incomplete Dislocation of the Radius and Ulna backwards.*

Thomas Kelly, aged twelve years, was admitted into Jervis-street Hospital on the 10th of November, 1846, for an injury of the elbow-joint. The history he gave of it was, that while riding a pony about five days previously the animal suddenly stopped, then turned round, and threw him; and that in falling he put out his hand to save himself.

The injury had been pronounced to be a fracture of the external condyle. Cold applications and leeches were applied. When I first saw him he was lying on his back, with the forearm in a state of pronation, and the hand resting on the abdomen, about midway between the pubis and umbilicus. This woodcut, taken from a plaster cast, exhibits the state of the parts.



From the similarity of position and appearance of the joint, it immediately struck me that the state of the elbow in this case was the same as in that of Phelan, which, on further examination, proved to be correct. The reduction of the dislocation was effected by an assistant passing his arm round that of the patient; extension of the fore-arm was then made by grasping

the hand, and rotating it outwards : in about a minute the head of the radius was seen to assume its proper position, and the fore-arm being suddenly bent, the olecranon immediately resumed its natural position. The fore-arm could now be flexed and extended, and also supinated and pronated.

Neither the second nor third cases answer to the following description of dislocation of both bones backwards, as given by Sir A. Cooper: "This dislocation is strongly marked by the great change which is produced in the form of the joint, and by its partial loss of motion. The shape of the elbow is altered, as there is considerable projection posteriorly formed by the ulna and radius. On each side of the olecranon appears a hollow, and a considerably hard swelling is felt at the fore part of the joint, immediately behind the tendon of the biceps muscle, formed by the lower extremity of the humerus ; the hand and fore-arm are supine, and cannot be rendered entirely prone : the flexion of the joint is also in a considerable degree lost."(*a*)

Boyer(*b*) tells us "the symptoms of a complete dislocation of both bones of the fore-arm are numerous and easy of recognition. The fore-arm is more or less flexed proportionally as the ulna and radius have ascended upon the lower extremity of the humerus. It is equally impossible to extend or flex the fore-arm further, and any endeavour to do so gives the patient extreme pain. Sometimes, however, the fore-arm possesses considerable freedom of motion in every direction, but this depends upon extensive laceration of the ligaments. On the anterior part of the arm a prominence is formed by the inferior extremity of the humerus. The olecranon, which, in the natural state of the articulation, and when the fore-arm is flexed, is on a level with the external condyle of the humerus, and inferior to the internal, is situated on the contrary when the dislocation exists above these tubero-

(*a*) Edition by Bransby Cooper, p. 440. (*b*) *Mal. Chir.*, tom. iv. p. 217

sities, notwithstanding the flexion of the fore-arm. This change of position of the olecranon relatively to the tuberosities of the humerus is more defined in thin persons than in those who are fat, or in those in whom there is much muscular development. It alone will suffice to point out the accident, and consequently is worthy of the greatest attention. If we add to the above-mentioned symptoms the fact of the patient having fallen upon the palm of his hand, and the pain which he suffers in the elbow-joint, with the total want of power, it will be almost impossible to mistake the accident. Such, however, has frequently occurred, and we ourselves could relate many like examples of false diagnosis, always followed by unhappy consequences."

The fourth case, to be detailed subsequently, agrees with the description given by Sir A. Cooper. But in the second and third cases there was not that considerable projection of the ulna and radius. It might be urged that the projection of the olecranon was not so great as laid down by Sir A. Cooper, the accident having occurred in a child, at which period of life the olecranon is not so developed as in the adult; the distortion was consequently not so great as what we imagined that it ought to be. But this fact having been allowed for, the olecranon did not project as it would have done in a complete dislocation; add to which, it was found upon a plane horizontally inferior to the condyles.

Boyer(*a*) lays it down as a rule, that the fore-arm is more or less flexed, in proportion as the ulna and radius have ascended upon the lower extremity of the humerus.

There was but little flexion in the cases of Phelan and Kelly, consequently there could have been but little displacement upwards of these bones.

Again, it may be urged, that the limb, in dislocation of both bones backwards, may not be flexed, but straight.

(*a*) *Mal. Chir.*, tom. iv. p. 217.

True it is that such may be the case ; but when this happens, there must have been considerable laceration of the ligaments, as also of the muscles on the anterior part of the joint, at the time of the accident. When such is the case, the power of the triceps not being counterbalanced, the fore-arm is kept in a state of permanent extension.

We find no mention made by Boyer as to the state of supination or pronation of the hand or arm.

Bichat(*a*), with most of the French writers, describes the hand as being pronated ; but adds, that he has found in the observations of Desault *many* cases in which the hand was supinated.

Could the cases Nos. 2 and 3 have been dislocations of the ulna backwards, “in which accident the limb is much deformed by the contortion inwards of the fore-arm and hand?” I think not,—for the finger could be pressed into the hollow cup of the radius ; nor were these cases of dislocation of the radius forward, in which accident the hand is in a prone position, as the cuplike cavity of this bone was perceptible posteriorly(*b*).

(*a*) *Œuvres Chir. de Desault*, tom. i. p. 388.

(*b*) In the fifth volume of Guy's Hospital Reports, Mr. Hilton writes : “ Knowing that the dislocation forwards and upwards sometimes baffles the best efforts of the most experienced surgeon ;—and finding that in the dead arm, with all the muscles taken away, I was yet unable, by pulling at the hand, to reduce the dislocation, I extended the fore-arm, and then placed a fulcrum, in the form of a piece of wood three quarters of an inch in diameter, across the front of the elbow above the head of the radius, where I secured it deeply buried. I then forcibly bent the fore-arm towards the humerus, making my efforts (by pushing) entirely on the posterior part of the ulna alone, without grasping the arm. The fulcrum introduced (of a diameter rather more than equal to the abnormal elevation of the radius) between the head of the radius and the external condyle prevented the radius reaching the condyle, but did not interfere with the complete flexion of the ulna ; and by the time the ulna reached its extreme flexion the head of the radius had resumed its proper position with regard to the external condyle, and so the luxation became reduced.” He relates the case of a little boy who came to the surgery of Guy's, with a dislocation of the radius forwards and up-

The accident was not a fracture, in which the condyles of the os humeri are sometimes obliquely broken off just above the joint,—for when such is the case, the olecranon keeps its true position with regard to the condyles; and moreover, the tumour in front *was below the fold of the arm*, whilst in fracture it is above it.

Both Phelan and Kelly had fallen upon their hands. Boyer says, the patient having fallen upon his hand will help the diagnosis of the complete dislocation backwards; consequently we may infer that it will be of like assistance in the partial dislocation. We must not, however, rely too much upon this fact alone, as we find in Mr. Adams' article on the Abnormal Condition of the Elbow-joint, in Todd's Cyclopædia of Anatomy, "that oblique fracture of the external condyle is frequently met with in children; a fall on the hand forwards may cause it, the impulse being transmitted along the radius to the capitulum and outer condyle of the humerus. The connexion of the radius with the ulna at this period of life is such, that no resistance is afforded to the forcible ascent of the radius when a sudden fall forwards upon the palm of the hand occurs; and hence, in the young subject, an oblique fracture of the condyle can readily happen."

The symptoms of the above accident, as laid down by Sir A. Cooper, are: "That there is some degree of swelling upon the external condyle, and pain upon pressure; the motions of the elbow-joint, both in extension and flexion, are performed with pain; but the principal diagnostic sign is the crepitus produced by the rotatory motion of the hand and radius. If the portion of the fractured condyle be large it is drawn a little

wards; and a thick cedar pencil having been placed across the elbow, above the cup of the radius, and the ulna being bent to complete flexion, "this had the effect of replacing the head of the radius on its proper level with the inferior surface of the external condyle; and then, by pressing the head of the radius backwards, it was restored to its normal position by the side of the ulna."—Second Series, pp. 99–100.

backwards, and carries the radius with it; but if the portion be small this circumstance does not occur."

Crepitus has often misled the surgeon in dislocation of the elbow-joint, and caused him to mistake it for a fracture, as may be seen by reference to Case 4(a). Boyer was well aware of this source of error, and says: "Another phenomenon, which sometimes appears to have been a cause of error in such cases, is a tolerably well-marked crepitus, which may be heard when the parts are moved upon each other. This leads to the belief that a fracture exists, and consequently is treated as such."

Chelius and most modern surgeons are also well aware of this source of error, and the former describes it as being almost always present in dislocations of the elbow-joint.

Fracture of the internal condyle of the humerus has often been mistaken for dislocation of both bones backwards; and partial dislocation of both bones backwards has been mistaken for fracture of the internal condyle. The displacement of the ulna backwards in both accidents, no doubt, leads to error. This may be avoided by recollecting that in fracture of the internal condyle the deformity does not exist when the fore-arm is bent to a right angle, but is immediately reproduced when the fore-arm is extended. The history of the accident may also help our diagnosis, for dislocation is produced by a fall upon the hand, whilst fracture of the internal condyle is caused by a fall upon the elbow. In dislocation of both bones of the fore-arm, be it complete or incomplete, the head of the radius can be felt displaced, and it can neither be fully flexed, extended, nor supinated.

CASE IV.—*Dislocation of both Bones backwards; Reduction by means of the Pulleys five Weeks afterwards.*

L. M., a strong, healthy girl, aged 19, was admitted into Jervis-street Hospital on the 5th of February, 1837. She stated that a month previously, in adjusting a set of curtains,

she had fallen about eight feet from a ladder. She was stunned at the moment, and upon recovery found her arm powerless. Swelling set in rapidly, and to a very great degree. She stated that a surgeon was instantly sent for, who told her mistress that her arm was fractured.

On examination after admission into hospital, it was discovered to have been a dislocation of both bones backwards. Much swelling and inflammation still being present, leeching and fomentation were ordered.

12th. The swelling and heat of the parts surrounding the joint being much diminished, reduction by means of the pulleys was happily accomplished. The radius resumed its proper position a few minutes after extension was commenced, but a much longer time was required before the reduction of the ulna was accomplished.

CASE V.—*Incomplete Dislocation of the Radius, as described by Goyrand.*

Towards the end of last summer I was requested to examine a child about a year and eight months old, who was believed to have received an injury of the arm. He had been already examined, but a decided opinion was not given as to the existence or non-existence of a fracture; and the mother was most anxious to have her mind satisfied on this point. The child lay crying in his mother's arms, with the arm partly extended, and the hand pronated. On inquiring how the accident occurred, the girl who had charge of him said that, a car driving up when they were crossing the street, she caught hold of him by the hand, and so lifted him up, and ran to the opposite side. Having made a careful examination of the limb, I was not able to detect a fracture. If I supinated the hand, it immediately returned to its former position. I could not flex the fore-arm to a right angle, nor could I detect any displacement about the elbow-joint. Having grasped the child's hand with my right hand, and his humerus with the left, I extended his

fore-arm, at the same time supinating the hand. Having held it in this position for about a minute, I suddenly flexed it, which I was then able to do to the fullest degree. The mother told me next day that I was scarcely gone when the child stopped crying, got down from her arms, and went about as if nothing had happened to him; nor was there any appearance of swelling about the joint on the following day.

The history and symptoms of this case so perfectly coincide with the description first given of this accident by M. Goyrand, that I here transcribe his remarks :

“ This displacement is never observed but in children of tender age, and most frequently from eighteen months to three years of age. At this period of life children are constantly falling, to prevent which they are caught up by the hand, or again they are lifted up by the hand to carry them over a pool of water; the superior extremity thus placed in pronation supports the weight of the body. From the moment the limb has been subjected to the extension causing the accident, sharp pain is felt in the elbow, the hand is pronated, the fore-arm about one-fourth flexed upon the arm, and resting upon the abdomen; there is no appreciable deformity in the elbow; the limb rests without power of motion. If anything is offered to the child he takes it with the other hand. If you endeavour to move the elbow, the child screams. If you endeavour to supinate the arm you find that you are resisted, and are obliged to desist on account of the cries of the child; and the moment you let go the hand it again resumes the former position.”(a)

It is evident that in the case I have given above there was some displacement of the radius, as proved by the former position of the hand, the impossibility of supination or of complete flexion or extension of the limb.

M. Goyrand is of opinion that this dislocation of the radius (although but slight) is forwards, and he believes that it may be

(a) *Gazette Med.*, tom. v. p. 115.

accounted for by want of strength in the connecting ligaments of the radio-humeral articulation in extreme youth, as also from the weakness of the muscles, which are unable to resist the extending force from its sudden application; that, consequently, the articulating surfaces of the humerus and radius are separated, and at the same moment the muscles contract; the result of which is, that the biceps draws forwards the superior extremity of the radius, and that the other muscles which go from the arm to the fore-arm and hand, draw upwards and forwards the radius, and forcibly keep it in contact with the small head of the humerus, in a position somewhat different from its normal position. Gardner, and after him Rendu, were of opinion that the only displacement was the passing of the bicipital tuberosity of the radius behind the corresponding edge of the ulna. Dissections in young subjects show the space between the radius and ulna to be too great to permit of such being the fact.

In conclusion, I cannot better enforce the necessity of an accurate diagnosis at the time of the injury, than in Boyer's(a) words: "If dislocation of the elbow be not quickly reduced, time is given to the soft parts to inflame, and it becomes quickly irreducible. It is rarely after a month or six weeks that reduction can be accomplished, and this is about the time that the inflammation and swelling ordinarily takes to subside. To what consequences, then, are we exposed, if we wait for the swelling and effusion to entirely subside, when any inflammation that may have been present was not to be dreaded beyond six or seven days. Nature can do but little towards the restoration of the powers of the joint. The fore-arm remains partly flexed, and the power of supination and pronation almost entirely lost."

(a) Tom. iv. p. 219.

ART. XI.—*Historical Notes concerning certain Illnesses, the Death, and Disinterment of Oliver Cromwell.* By W. WHITE COOPER, F. R. C. S. E.; Senior Surgeon to the North London Eye Infirmary.

THERE is much interest attached to the closing hours of the existence of those who, by their eminent talents or superior mental endowments, have raised themselves above the standard of ordinary men. Independently of the fact that during sickness the veil is drawn aside from the character, and, with few exceptions, the real nature of the man displayed, our sympathies are awakened by his sufferings as we watch the progress of the disease. We criticise the bearing of the patient, marking with painful interest the failure of remedial measures; we trace, step by step, the sinking of the vital power; and there are few who do not involuntarily heave a sigh as the scene closes, and they read of the flight of the immortal spirit. Men of great genius, when in humble circumstances, are rarely appreciated during life; but no sooner has the grave closed upon them than their superiority is felt and acknowledged, tributes of honour are paid to their memory, and succeeding generations reproach their forefathers with a neglect of talent, which they, perhaps, in their turn, are equally backward in discovering.

History, however, shows us remarkable instances of men who, rising superior to the accidents of birth, have forced themselves forward by the impetus of talent and energy, and have rendered themselves conspicuous, either as the benefactors or the scourges of mankind. National convulsions are peculiarly favourable for the development and manifestation of such characters. Nature seems to have designed these persons for the royal purple. They receive as their due the homage of men who by birth and education possess immeasurably superior advantages, that homage being rendered as the tribute due to a superior mind.

Oliver Cromwell presents a remarkable example of this class. Unknown and unheard-of until he had reached the meridian of life, he raised himself by his courage and mental superiority to the government of these kingdoms. Unacquainted up to the age of forty-three with military tactics, he organized an army, more terrible in war, and more orderly in peace, than Europe had ever seen. He humbled the pride of Spain and Holland, and made Great Britain respected by all nations. He set an example worthy of imitation, of discriminating talent, and affording it opportunities for development. He raised the moral standard of his country from the degradation to which it had fallen since the time of Elizabeth, and left a fame behind him proportioned to his extraordinary fortunes, and to the great qualities which sustained them.

On the 23rd of April, 1616, the immortal poet, Shakspeare, breathed his last; and on that same day commenced, in the little world of a university, the public career of a man destined to play a most conspicuous part in the history of these kingdoms. It appears by the university records, that on the 23rd of April, Oliver Cromwell, being then seventeen years of age, was entered a member of Sydney Sussex College, Cambridge. His father dying soon afterwards, he removed to London, and studied at Lincoln's Inn; but disliking a legal life, and having married, he returned to his paternal demesne in Huntingdonshire. The next ten years were passed in comparative seclusion with persons whose religious tenets were of a stern and sombre description. During this period he was subject to severe hypochondriasis. He frequently wandered by the banks of the Ouse for hours together, in a state of extreme dejection, and uttering groans in agony of spirit. It is also related that on several occasions he sent for Dr. Simcott, a physician at Huntingdon, to come to him with all speed, as he fancied he was dying.

This hypochondriasis has been attributed by his biographers either to the prickings of his conscience for sins in ge-

neral, or to remorse for an abandoned life, and has been used as an argument in favour of his having led such a life. It appears to us that physical causes have not been sufficiently taken into consideration. Hypochondriasis, arising either from derangement of the biliary or digestive organs, or from malaria, is one of the most frequent sources of misery to mankind. The sufferer is harassed by real or imaginary evils, even to the expectation of approaching death. A deep gloom pervades the mind; hope is for the time extinct; trivial indiscretions assume the aspect of crimes of the deepest dye; whilst the mind is so unhinged that it is incapable of the least exertion, and thus the unfortunate individual is denied the consolation of forgetting for a time his griefs in any interesting occupation.

Cromwell was living in a low marshy country when he first suffered from this malady; for, however well drained Huntingdonshire may be at present, it was certainly far otherwise in the seventeenth century. Dr. James Johnson, when treating of hypochondriasis, says: "There are some cases where this periodical or occasional exasperation of the despondency and mental discomfort cannot be traced to any errors in food or drink; as these exasperations will come on when the individual is adhering to the most strict and temperate regimen. It is difficult to account for such occurrences, but it is quite evident that they depend on some *physical* cause, probably atmospheric, in the shape of malaria, acting on a nervous system rendered unnaturally susceptible by the moral causes already described. . . . During the last few years I have been able distinctly to trace, in numerous instances, the disease in question to malaria; that is, to the influence of a damp situation." There can be no question that such localities do exercise a great influence upon the spirits. The unsettled wandering from place to place, the solitary nocturnal walks, the groans uttered by Cromwell,—all point to a morbid clouding of the mind, the phantom of an imaginary evil which haunted his spirit, and from which his

mental eye turned with dismay. The gloomy character of his thoughts and feelings would harmonize with the stern tenets of the Puritans(*a*). A mind thus overcast is ever ready to seek consolation in overstrained dogmas, miscalled religion; to assume, as the mainspring of its actions, inward impulses, which are preferred to the express commands of the holy Scriptures; and to regard the prompting of a heated imagination as communications directly emanating from the Most High.

It may not unreasonably be supposed that the fanaticism which influenced the mind of Cromwell, and imparted a dark hue to many of his actions, was to be traced in the first instance to hypochondriasis, aggravated, if not excited, by long residence in a low fenny district, fed and increased by the watchings, fastings, and nightly vigils, his distempered imagination led him to observe. A remarkable feature in his character was that deep enthusiasm, that perversion of religious fervour, which induced him to commit acts only to be accounted for by fanaticism. The Puritans supposed that their fervent prayers would, if acceptable, receive an answer direct from the Almighty. By fasting and vigils they were wont to lash their enthusiasm to the highest point, and the mental excitement almost approaching to delirium, which was the natural effect of such proceedings, was regarded by them as a supernatural inspiration. This was remarkably exemplified in the circumstances attendant upon Cromwell's decision as to the fate of Charles I. If, while Cromwell was engaged in prayer, he felt a lively conviction in his mind, he thought that this impression proceeded immediately from heaven, and ought to be fol-

(*a*) Notwithstanding the rage of the Puritans against music, Cromwell was a great admirer of the art, and no mean judge of it. John Hingston, a pupil of Orlando Gibbons, was organist to him. Hingston had been retained in the royal service, but, being tempted by the offer of £100 a year, he went over to the party of the Protector, and instructed his daughters in music.

lowed as the very voice of God. If, on the contrary, his devotions remained languid, he concluded that he ought to abstain from the meditated act.

Whilst the sentence of the King was under consideration, Cromwell's cousin, John Cromwell, at that time in the Dutch service, came to England with a message from the Prince of Orange and the Prince of Wales, to endeavour to save the King's life. When introduced to Oliver, he reminded him of the favourable disposition he had formerly entertained towards the King at Hampton Court, and worked greatly on his feelings. Oliver, still uncertain as to the line of conduct he ought to pursue, replied that he had often fasted and prayed to know the will of God with respect to the King, but that God had not yet pointed out the way. When John had withdrawn, Oliver and his friends again sought by prayer the path they ought to follow, and it was then that the Parliamentary General is said to have first felt the conviction that Charles's death alone could save England. From that moment all was fixed; God had spoken, and Oliver's indecision was at an end; it remained now merely to act and accomplish that will however appalling. At 1 o'clock in the morning, a messenger from the General knocked at the door of the tavern where John Cromwell lodged, and informed him that his cousin had at length dismissed all his doubts, and that all the arguments so long put forward by the most decided republicans were now confirmed by the will of the Lord(*a*).

On the 17th March, 1628, Cromwell took his seat in the new Parliament; he rose to speak for the first time on the 11th of February, 1629, and was listened to with attention; for although his voice was sharp and inharmonious, his delivery was warm and animated, his air manly, his look stern, and his eye bright and sparkling(*b*). Upon one occasion a member addressed the House with so much vehemence and effect,

(*a*) *The Protector*, by Merlé d'Aubigné. London, 1847.

(*b*) *Memoir of Sir P. Warwick*. London, 1701.

that Lord Digby, to whom he was unknown, leant forwards, and with astonishment inquired of John Hampden his name. Hampden answered with a smile: "That sloven, whom you see before you, hath no ornament in his speech; that sloven, I say, if we should ever come to a breach with the King (which God forbid),—in such a case, I say, that sloven will be the greatest man in England." The person thus alluded to was Oliver Cromwell.

Troublous times increased; the political horizon grew darker, and religious persecution more severe. Government had rendered itself so odious in various ways, that thousands of men, differing in rank, fortune, and object, severed themselves from their native land and emigrated to distant climes. An order of Council (May 1, 1637) forbade these emigrations. At that very time eight vessels, ready to depart, were at anchor in the Thames; on board one of them were Pym, Haselrig, Hampden, and Cromwell. Who can say what the destiny of England would have been, had that ship been permitted to pursue her course?

In June, 1650, the Council of State having reason to believe that the Scottish army would invade England, determined to be beforehand with them, and to carry war into Scotland. Fairfax was then general-in-chief of the parliamentary forces, but, disapproving of the intended war, he resigned his commission. On the 26th of June an Act was passed nominating Oliver Cromwell general and commander-in-chief of the armies of the Commonwealth(*a*). On the 29th he left London for Scotland, and on the 22nd of July crossed the Tweed. The campaign which followed was marked by unusual inclemency of weather, extreme wet alternating with heavy snow. The Scots adopted a plan of harassing the invading forces, successfully followed in recent times by the Russians on the invasion of their country by Napoleon,—that of destroying

(*a*) Whitelocke's Memorials of English Affairs. Fol. London, 1732.

all forage, carrying away all provision, and devastating the country. So completely was the country stripped of resources that, when Cromwell took up his head-quarters at the house of Lord Mordington, near Berwick, neither furniture nor even ordinary cooking utensils were found. In the quaint language of an eye-witness, "there was not so much as a cup or glass. Some of our souldiers(*a*) brought raw meat with them and became excellent cooks: a back (piece) makes a dripping-pan, and a head-piece a porrage-pot".(*b*) Until the end of August the Scotch army carefully avoided any engagement, their general (Leslie) well knowing that disease and famine would break the spirit and subdue the energy of the enemy. Cromwell, finding his army reduced to great straits, left Musselburgh on Saturday, August 31, and was followed by the Scotch. A favourable opportunity for attacking him presented on the following day, but the Covenanters forbade it on the score of breaking the sabbath; meanwhile Cromwell and his troops reached Dunbar. The Scotch were in possession of the passes which command the road between Dunbar and Berwick, and nothing but the folly of the enemy prevented Cromwell being reduced to the greatest extremities. The Covenanters had been wrestling with the Lord (as they termed it) night and day, and their excited imaginations promising them victory, induced them to persuade Leslie to leave his strong position and to descend into the plains. When Cromwell's attention was drawn to their movement, he is said to have

(*a*) Since this article has been in type, four original letters of Cromwell, discovered by Mr. Dawson Turner amongst the papers of Dr. Cox Macro, have appeared in print. A sentiment expressed in one of them is so strikingly characteristic of the writer that I cannot forbear quoting it:

"If," says he, "you chooose godly honest men to bee captaines of horse honest men will followe them. . . . I had rather have a plaine, russett-coated captaine, *that knowes what hee fights for, and loves what hee knowes*, then that which you call a gentleman, and is nothing else." Of such "russett-coated men" were the armies of the Commonwealth composed.

(*b*) Perfect Passages, July 26, 1650.

watched them for a time through a telescope, and then, closing his glass, to have exclaimed, that "the Lord had delivered them into his hands." It is impossible not to be struck with the resemblance of this scene to one which occurred during the Peninsular war. Wellington and Marmont had been watching each other day after day, each striving to take advantage of any blunder his adversary might commit. On the 22nd of July, 1812, Marmont extended his left beyond support. In the words of the eloquent historian of the Peninsular war: "Marmont's first arrangements had occupied several hours, yet as they gave no positive indication of his designs, Wellington, ceasing to watch him, had retired from the Arapiles. But at 3 o'clock a report reached him that the French were in motion, and pointing towards the Ciudad Rodrigo road; then, starting up, he repaired to the high ground, and observed their movements for some time with a stern contentment, for their left wing was entirely separated from their centre. The fault was flagrant, and he fixed it with the stroke of a thunderbolt."*(a)* The glorious battle of Salamanca was the result of this error on the part of Marmont, and the rout of Dunbar of that on the part of Leslie. Never was victory more complete than in either instance. A French officer described the battle of Salamanca as the beating of 40,000 men in forty minutes. That of Dunbar annihilated the Scotch army, and at once placed Cromwell in possession of Edinburgh and Leith.

The combination of bodily fatigue, harass of mind, and exposure to the weather, during an unusually inclement season, was greater than Cromwell's iron frame could bear; and in February, 1651, he had a sharp febrile attack, which for a time confined him to the house. A letter from Edinburgh*(b)* says: "My Lord General, since his last march, has been sick of the country disease, but, blessed be God, is on the mending hand."

(a) History of the War in the Peninsula, by W. F. P. Napier, vol. v. p. 167.

(b) Several Proceedings in Parliament, February 13 to 20, 1650.

A somewhat later account(*a*) says that the Lord General Cromwell “is well recovered again;” and adds: “We hope the cold season of the year will be over shortly, which would much chear up the private souldier in this cold, barren, hungry country.” On February 25th we are told that, “my Lord Generall hath had an indisposition of body hanging upon him ever since our last march, and still he continues a little crazy.” The press of business thrown upon him by the responsibility of his position, would not, however, permit him to take that care of himself which would have been proper, and accordingly he had a relapse. The intelligence on 4th of March is(*b*): “For newes I have this to advertise at present, since my last, that my Lord Generall, since he was sicke, hath been abroad and went to Leith, but came back not well again, so he hath entered into a course of physic, but, God be blessed, pretty chearfull, but loathe at present to venture abroad, for fear of catching cold as yet, untill he hath gotten more strength(*c*).

By a letter from a gentleman that attended the Lord General Cromwell in Scotland, to the Lady Cromwell at Westminster, we find that he made steady progress towards recovery(*d*): “Honourable Madam,—Having this occasion of our extraordinary post, I could not omit this opportunity of giving your ladyship some account how my Lord Generall doth, though I have scarce time to put pen to paper. Truly, Madam, my lord took his rest very well on Tuesday night last, and so (blessed be God) he hath done every night since, and sometimes in the daytime also; so that he is better sensible both in Dr. Goddard’s judgement and also in his own, hath a better stomach, and

(*a*) Perfect Passages, February 14 to 21.*

(*b*) Several Proceedings in Parliament, March 6 to 13.

(*c*) The papers above quoted bear date 1650, but clearly bear reference to events of 1651, as may be seen by comparing them with papers of March, 1651. In the spring of 1650 Cromwell was in Ireland.

(*d*) Perfect Passages, March 7 to 14.

grows stronger." The information carried on to the 20th is(a), "that my Lord Generall having fallen into some indisposition of body, by reason of the hardship indured upon our last march, is now upon the mending hand and pretty well recovered, to the great comfort of the army." On the 28th(b) we learn, that "the physitians that are about my Lord Generall Cromwell have been so careful of recovering his health, that they have kept him from being troubled with any publike business, and now he gathers strength apace, and walks about." The next intelligence is, that he is convalescent(c): "This day, by special express from Edinburgh, we had as followeth: 'The Lord Generall is now well recovered; he was in the dining-room this day with his officers, and was very chearfull and pleasant, so that there is not any fear (by the blessing of God), but he will be enabled to go into the field when provisions come.'" And on the 10th of April we find that he was recovered from the attack and in active service(d): "Our ships are now before Blacknesse, having given the enemy a terrible alarm. * * His Excellency is, blessed be God, at this present in person in the field."

Not only were the Lord General's physicians and attendants in much alarm concerning this illness, but he himself entertained but small hopes of recovery, as is shown by the following letter to Bradshaw, Lord President of the Council(e):

" *Edinburgh, 24th March, 1650*(51).

"MY LORD,—I do, with all humble thankfulness, acknowledge your high favour and tender of respect to me, expressed in your letter, and the express sent therewith to inquire after one so unworthy as myself. Indeed, my Lord, your service

(a) *Mercurius Politicus*, March 13 to 20.

(b) *Perfect Passages*, March 21 to 28.

(c) *Perfect Diurnal*, March 24 to 31, 1651.

(d) *Sev Proc. in Parl.*, April 3 to 10, 1651.

(e) *Letters and Speeches of Oliver Cromwell*, by T. Carlyle, vol. ii. p. 302.

needs not me. I am a poor creature, and have been a dry bone, and am still an unprofitable servant to my master and you. I thought I should have died of this fit of sickness; but the Lord seemeth to dispose otherwise. But truly, my Lord, I desire not to live, unless I obtain mercy from the Lord to approve my heart and life to Him in more faithfulness and thankfulness, and to those I serve in more profitableness and diligence."

Having taken the field again, Cromwell continued actively engaged with the army until May, when he brought his forces back to Edinburgh, and took up his quarters at the noble mansion of Earl Murray, in the Canongate. Soon afterwards he was attacked with an intermittent fever which brought him to the brink of the grave. So severe was his illness that it excited the most serious apprehensions in the Parliamentary forces, and elevated in a proportionate degree the spirits of the Scots. Indeed it was generally believed by their army that he was dead, until one of the soldiers had ocular demonstration of his existence. A Scotch trumpeter, coming from Fife to Edinburgh, very confidently affirmed to the soldiers that their General was dead, although they did very well to conceal it, and laughed to scorn all their assurances to the contrary. Cromwell, hearing of this, ordered the trumpeter to be brought into his presence, as he was then convalescent, and desired him to carry back to his friends the positive intelligence of his being still in the flesh.

It would seem that during his short campaign he suffered from a fit of gravel: "Berwick, May 4.—The Lord General hath been ill of the stone, but, blessed be God, is now again well and chearful. His Excellency is returned with the army to Edinburgh to their old quarters."(*a*)

An illness, which nearly proved fatal, commenced about the 10th of May, 1651. The contemporary accounts are as

(*a*) Sev. Proc. in Parl., May 8 to 15.

follows(*a*): “Being at Edinburgh, in Scotland, it pleased the Lord to exercise him with sore sicknesse, a high and dangerous Feavor, whereby he was brought so low that his physicians and others had little or no hopes of his recovery; for one fit of his distemper having lasted about twelve hours; immediately a second fit returned upon him without any intermission for as long a time, and likely to have continued in that extremity, until thereby he had expired. But behold, this was God’s opportunity to show his power, and to magnifie his Word, a portion whereof, by the hand of the Spirit of the Lord, was then given in unto him, not only to feed his faith, and revive his heart, but also to rebuke his disease, which immediately left him, to the astonishment of himself and others, it being little less than a miracle; for his distemper returned no more upon him.” A letter from Edinburgh contains some interesting particulars of this illness, which for a time paralysed the parliamentary troops(*b*): “Sir, I bless God that I can give you some more comfortable information concerning my Lord’s health, than I did in my last. From Friday night till Monday at 12 of the clock at night, he had five fits of an ague. But Monday at night he had none, but rested and slept well; and this day he is quiet and comfortable, and now and then sleeps. His lips brake out about six at night which is a good sign of recovery. I waited on him on Thursday. If it please God he escape his fit this night we may hope the worst is past for this bout. I suppose the post will be stayed till morning to give an account of this night, but that is not my work. This is the third relapse since his first great sickness which was contracted by a winter’s march. My Lord is not sensible that he is grown an old man. But if it please God to restore him now (of which we doubt not), I hope we shall prevail with him to favour himself. This air is not so suitable to his

(*a*) *An Account of the Last Hours of the late renowned Oliver, Lord Protector.* London, 1659, p. 8.

(*b*) *Perfect Diurnal*, May 26 to June 2, 1651.

temper as that of England. All thoughts of his marching with the army at their first going out is laid by; and the officers provide accordingly to manage their business without his personal presence."

The intelligence of the illness of the General caused the Parliament so much uneasiness that, on the 27th of May, they sent a message desiring him to retire to some convenient place in England, for the benefit of his health; and, moreover, ordered Dr. Bates and Dr. Wright, who were Cromwell's physicians in London, and highly esteemed by him, to proceed forthwith to Scotland to take charge of him: he was, however, recovering before they arrived. A letter from Edinburgh says(*a*): "We have received intelligence here that the old Lord General Fairfax hath this way sent his coach from London with two doctors, Dr. Wright and another, to visit his Excellency Cromwell. They are expected here to-morrow, but the Lord himself hath (before their coming, blessed be his name) been his physician, and said unto him 'Live.'" A journey from London to Edinburgh in those days was no inconsiderable matter, but the doctors accomplished it in safety, and arrived at their destination on the 30th of May, as appears from the following letter from Edinburgh, dated May 31(*b*): "It is a great gladness to our hearts that the Lord is pleased to be so merciful to us in the renewed health of my Lord Generall. He eats and sleeps well, and walked yesterday very cheerfully in the garden at his own quarters, and gaineth strength apace. Dr. Wright and Dr. Bates came hither yesternight and, as they deserved, were exceeding affectionately entertained by my Lord." Soon after this he was sufficiently recovered to take the air(*c*): "From Scotland we hear that the English army hath taken the field, and that the Lord Generall Cromwell, on Thursday, June 5, rode abroad in his coach,

(*a*) Sev. Proc. in Parl., May 29 to June 5.

(*b*) Mercurius Politicus, June 5 to 12.

(*c*) The Faithful Scout, June 13 to 20.

but by reason of the ill vapors proceeding from the Scottish mist, his Excellency soon returned to Edinburgh again."

Cromwell was deeply sensible of the danger from which he had been mercifully preserved, and seems fully to have appreciated the consideration shown to him by the authorities at home. These feelings he expresses in a letter bearing date June 3, 1651, and addressed to the Lord President of the Council^(a): "My Lord,—I have received yours of the 27th of May, with an order from the Parliament for my liberty to return into England for change of air, that thereby I might the better recover my health, all which came unto me whilst Dr. Wright and Dr. Bates, whom your Lordship sent down, were with me. I shall not need to recite the extremity of my last sickness. It was so violent that indeed my nature was not able to bear the weight thereof. But the Lord was pleased to deliver me beyond expectation, and to give me cause to say once more, 'He hath plucked me out of the grave.'" On the 9th of June intelligence was received in London that the General was restored to health, and that the physicians had returned to town.

Such was the first distinct attack of the disease which, seven years after, returned upon Cromwell, when his frame was shattered by mental anxiety and the cares of the State, and his heart broken by an accumulation of the heaviest afflictions. The loss of his old and dear friend, the Earl of Warwick, and the death of his beloved daughter immediately after, crushed him to the earth, and completely prevented his rallying from the fever which brought him to the grave.

To carry on the thread of this history our readers may be reminded that Cromwell was elected Lord Protector of the Commonwealth, Friday, 16th of December, 1653. On the 29th of September, 1654, he met with an accident from which it is marvellous how he escaped unscathed. In those days Hyde Park was comparatively in the country; the restless

(a) Carlyle, *Op. cit.*

tide of population had not then reached it. On Michaelmas day the Lord Protector, being disposed for relaxation, rode there with Secretary Thurloe, and took his repast *al fresco*. What the adventures were which befell him, we learn from a despatch from the Dutch ambassadors(*a*) to their Government: “His Highness, only accompanied by Secretary Thurloe and some few of his gentlemen and servants, went to take the air in Hyde Park, where he made his dinner, and afterwards had a desire to drive the coach himself, having put only the Secretary into it, being those six horses which the Earl of Oldenburgh had presented unto his Highness, who drove pretty handsomely for some time, but at last, provoking those horses too much with the whip, they grew unruly and run so fast that the postillion could not hold them in. Whereby his Highness was flung out of the coach-box upon the pole, upon which he lay with his body, and afterwards fell to the ground; his foot getting hold in the tackling he was carried away a good while in that posture, during which a pistol went off in his pocket; but at last he got his foot clear and so came to escape, the coach passing away without hurting him. He was presently brought home and let blood, and after some rest taken he is now pretty well again.”

Until this period the venerable mother of the Protector was alive. Her affection for her son was extreme, and her anxiety for his safety so great, that she could never go to rest in peace until she had assured herself, by the sight of him, that he was alive and in good health. She died on the 16th of November, 1654, at the patriarchal age of 94; and her last moments are thus described by Thurloe: “A little before her death she gave my Lord her blessing in these words: ‘The Lord cause His face to shine upon you and comfort you in all your adversities; and enable you to do great things for the glory of your Most High God, and to be a relief unto

(*a*) A Collection of the State Papers of John Thurloe, Esq., London, 1772, vol. ii. p. 652.

His people. My dear son! I leave my heart with thee! Good night!"—and therewith sank into her long sleep. A solemn and touching farewell!

In September, 1655, it was generally rumoured in Holland and Hamburgh, that the Protector "had beene lately in danger of his life,"(a) which report caused some excitement among the royalists. Its origin, doubtless, arose in a severe attack of cholic, which had threatened serious consequences, and rendered complete repose of body and mind indispensable. Nieuport, the Dutch Ambassador, was desirous of an audience on the 17th September; applying to the Secretary of State, he was informed that(b), "the Lord Protector found himself a little better than before, but that he daily still continued to take physic; and that the physicians had desired him to abstain as yet, as much as possible, from consultations of state; that accordingly, neither the Council nor he had dared trouble him in the least."

The year 1658 brought with it great cares and troubles to the Protector. The position which he occupied exposed him to manifold perils, secret and open; the wear and tear of state anxieties, with incessant toil of body and mind, told upon him, and he was constantly harassed by plots against his life. He had been subject to repeated attacks of indisposition during the spring, which, though not of themselves particularly dangerous, indicated the extent to which his constitution was undermined. As early as September, 1650, he had written to his wife(c): "The Lord hath showed us an exceeding mercy; who can tell how great it is! My weak faith has been marvelously supported; though I assure thee I grow an old man, and feel infirmities of age marvellously stealing upon me."

In addition to the cares we have mentioned, Cromwell was doomed to heavy afflictions; he lost by death his old and valued friend, the Earl of Warwick, and also the heir to that

(a) Thurloe, vol. iv., p. 26.

(b) *Op. cit.* p. 18.

(c) Carlyle, vol. ii. p. 224.

house, Mr. Rich, who had married the Protector's youngest daughter; but the heaviest blow was the death of his amiable and favourite daughter, Mrs Claypole. She is described by foes, as well as friends, to have possessed every qualification which could adorn her sex. Whatever faults Cromwell may have possessed, those of coldness of friendship, or want of affection in the domestic relations of life, cannot be charged against him. His letters prove him to have been a devoted husband, an excellent parent, and a warm friend. There are many who, regarding him as an accomplished hypocrite, can see only *cant* in his exhortations; but those who will peruse his letters to his wife and children^(a) with an unprejudiced mind, will, we think, agree with us, that they bear internal evidence of true devoutness, and are penned in sincerity of heart and singleness of purpose. Mrs. Claypole died of uterine disease, most probably cancer of the womb; and during her long and painful illness her father attended upon her with the most tender solicitude. For fourteen days and nights he never quitted her bedside; and in addition to the affliction her sufferings must have caused him, his feelings were harrowed up by reproaches which she addressed to him during the delirium caused by the intensity of suffering. A short time previously, the Protector had directed the execution, for high treason, of Dr. Hewet, a divine who had united in marriage Mary, his third daughter, to Lord Fauconberg, and in whom Mrs. Claypole felt deeply interested. In vain, however, had intercession for him been made by her. Her father was inexorable, and the sentence of death was permitted to take its course. This, and other acts of his life, are said to have formed the subject of his daughter's bitter reproaches, which were felt most keenly by her suffering parent. When, however, the hopes which were entertained of Mrs. Claypole's recovery proved fallacious, and she sank into that sleep which knows no wak-

(a) Carlyle, Letters xcv. exix. cxxx. clvii. clix.

ing(*a*), then did the intensity of grief bow Cromwell to the earth, inflicting such a shock upon his already enfeebled system as to cause the return of the intermittent fever from which, seven years before, he had suffered in Scotland. Some authorities have supposed that the ague of which he died was contracted at Hampton. There is, however, good reason to believe that it was merely the latent seeds of his former attack, roused into activity by a combination of debilitating causes. It is well known that circumstances comparatively trifling will induce a return of intermittent fever after long intervals, and debility renders the individual especially prone to its incursions. A high authority thus expresses himself(*b*): “When I have told you that debility, any how produced, constitutes a predisposition to intermittent fever, I need scarcely add that all the multiform causes of debility may also be regarded as predisposing causes of this same disease, as they are of so many others. But the strongest predisposing cause of all is actual occurrence of the disease itself. The effect of former intermittents upon the system is such, that the complaint may be reproduced by agencies, which under any other circumstances would be quite inoperative in exciting ague . . .

(*a*) Mrs. Claypole died on the 6th of August, at Hampton Court, from whence she was conveyed by water four days after, with a great many mourning barges, to Westminster, and there laid in the Painted Chamber, where a stately hearse was prepared for her, and about 12 at night she was carried into King Henry the Seventh’s chapel, and there interred.—*History of Oliver Cromwell*, by R. D. London, 1692. In 1725, when alterations were making in that chapel, previous to an installation of the Knights of the Bath, the vault of this lady was discovered near the steps of the founder’s tomb. Mr. Fidoe, clerk of the works, observing the workmen extremely busy, and in confusion, went to them, when he found that they had forced the silver plate from off the coffin, and were endeavouring to conceal it. Fidoe took it from them, and delivered it to Dr. Pearce, the Dean, who said he would not take anything that had been deposited with the illustrious dead, and ordered it to be carefully replaced.—*Noble’s Memoirs of the Cromwell Family*, vol. i. p. 142.

(*b*) Watson’s *Lectures on the Practice of Physic*, vol. i. p. 712.

The disease leaves the body in a condition in which other injurious influences may of themselves be sufficient to renew it. It brings into play a new order of exciting, or rather of re-exciting causes. If a person were never exposed to the malaria, he would never, as I believe, have ague; but having once had ague he may many times have it again, although he should never again be subjected to the direct influence of the malaria."

The Protector had been far from well, and suffering from gout, for some days previous to the death of Mrs. Claypole; and the combination of anxiety, grief, and loss of rest, had altogether deranged his system. Symptoms of intermittent fever did not fully develope themselves until the 17th August, though he suffered much from pains in his back and bowels, and his rest was broken and unrefreshing. The despatches to Henry Cromwell, Lord Lieutenant of Ireland, afford a very interesting narrative of his fatal illness, which is rendered complete by the writings of Dr. Bates, Maidstone, Harvey, and other contemporaries. A curious record has been left by George Fox, the Quaker, of his last interview with the Protector, which took place about the 20th of August, the third day after the appearance of the ague. George Fox and two friends going out of town, had been met by two of Hacker's soldiers, who took them into custody and brought them to the Mews, from whence, however, after some rough jests, they were permitted to depart. "The same day," writes Fox(a), "taking boat I went down to Kingston, and from thence to Hampton Court, to speak with the Protector about the sufferings of friends. I met him riding into Hampton Court Park; and before I came to him as he rode at the head of his Life Guard, I saw, and felt a waft of death go forth against him; and when I came to him he looked like a dead man. After I had laid the sufferings of friends before him, and had warned him ac-

(a) Fox's Journal, vol. i. pp. 485-6.

ording as I was moved to speak to him, he bad me come to his house, so I returned to Kingston: and the next day went up to Hampton Court to speak further with him, but when I came, Harvey, who was one that waited on him, told me the Doctors were not willing that I should speak with him, so I passed away and never saw him more."

Henry Cromwell, to whom the following communications were addressed, differed greatly from his brother, Richard, afterwards Protector. He was possessed of considerable talents, great energy, indomitable courage, and much tact. It has been supposed, with much reason, that his father intended him for his successor; had he taken the reins of Government, a very different history of England, and of Ireland also, might, perchance, have had to be written! Secretary Thurloe thus reports to him^(a): "I was necessitated to omit writing by the last post, being obliged to attend my Lady Elizabeth's (Mrs. Claypole's) funeralls, shee being this day se'nnight at night interred at Westminster, whither she was carryed from Hampton Court. Your Lordship is a very sensible judge how great an affliction this was to both their Highnesses, and how sadd a familie she left behind her, which sadnesse was truly very much encreased by the sicknesse of his Highnesse, who at the same tyme lay very ill of the gout and other distempers, contracted by the long sicknesse of my lady Elizabeth which made great impressions upon hym; and since that, whether it were the retiringe of the gout out of his foot into his body, or from some other cause I am not able to say, he hath beene very dangerously sicke, the violence whereof lasted 4 or 5 dayes, but blessed be God he is now reasonable well recovered, and this day he went abroad for an houre, and findes himselfe much refreshed by it, so that the recovery of his Highnesse doth much allay the sorrow for my Lady Elizabeth's death." Notwithstanding this favourable account, symptoms of

(a) Thurloe, vol. vii. p. 320.

intermittent fever set in, and the physicians, finding that the ague increased, rather than diminished in severity, determined upon removing him to London. Dr. Bates informs us, that “for a week’s time his disease continued without any dangerous symptoms, insomuch that every other day he walked abroad. But one day after dinner his five[!] physicians coming to wait upon him, one of them having felt his pulse said that it intermitted; at which being suddenly startled he looked pale, fell into a cold sweat, almost fainted away and ordered himself to be carried to bed, where being refreshed with cordials he made his Will. Next morning when one of his Physicians came to visit him, he asked the Physician why he looked so sad? and when he answered that so it became any one who had the weighty care of his life and health upon him; ‘Ye Physicians,’ said he, ‘think I shall die.’ Then the company being removed, he holding his wife by the hand, said, ‘I tell you I shall not die this bout, I’m sure of it.’ And observing the Physician to look more attentively upon him at these words, ‘Don’t think,’ said he, ‘I am mad; I speak the word of truth upon surer grounds than Galen or your Hippocrates furnish you with; God Almighty himself hath given that answer not to my prayers alone, but also to the prayers of those who entertain a stricter commerce and greater intimacy with him. Go on cheerfully, banishing all sadness from your looks, and deal with me as you would do with a serving man. Ye may have skill in the nature of things, yet nature can do more than all Physicians put together, and God is far above all nature.’ ”

Dr. Bates, who has given this account, was subsequently physician to Charles II., and the book in which it is related was published during his reign. It is, therefore, just possible, that, seeking favour with the prevailing powers, the worthy Doctor had somewhat drawn upon his imagination in his narrative of the Protector’s illness. He is totally silent concerning his own visit to Edinburgh with Dr. Wright in 1651; that fact is altogether kept out of sight. Whether the words narrated were

actually those used by Cromwell or not, we cannot but admire the just rebuke to the physician who came before him with such a sad countenance. In the sick chamber a cheerful countenance is not only welcome but positively beneficial; and he who assumes a grave and melancholy bearing, drives (to use a homely expression) a nail into the coffin of his patient.

Bates further relates that, “as the Physician was coming out of the chamber he accidentally met another of his particular acquaintances, to whom he said, ‘I am afraid our patient will be light-headed.’ The other replied, ‘you are certainly a stranger in this house. Don’t you know what was done last night? The chaplains, and all who are dear to God, being dispersed into several parts of the palace have prayed to God for his health, and all have brought this answer,—‘he shall recover.’”

It is an interesting fact connected with the last illness of Cromwell, that prejudice prevented the exhibition of Peruvian bark. The cinchona became popular in England about 1655, but unfortunately an alderman of the city of London, Underwood by name, died whilst taking it, shortly before the Protector’s illness. It was immediately reported that he had fallen a victim to the new remedy, and consequently the physicians in attendance upon the Protector feared to employ it in his case.

The Protector was removed from Hampton Court to Whitehall on the 24th of August, and on the 30th Thurloe(*a*) thus writes to Henry Cromwell: “I gave you some account by Doctor Worth of his Highnesse’s condition as it then was; but least he should delay his journey or miscarry in it, I thought it was necessary to send this expresse, to the end your excellency may fully understand how it is with his Highnesse; this is the thirteenth day since his ague took him, havinge beene sicke a fortnight before of a generall distemper of body.

(*a*) Thurloe, vol. vii. p. 363.

It continued a good while to be a tertian ague, and the burninge fitts violent. Upon Saturday it fell to a double tertian havinge two fitts in twenty-four hours; one upon the heeles of another, which doe extremely weaken hym and endaunger his life; and truly since Saturday Morning he hath scarce been perfectly out of his fitts. The Doctors are yet hopefull that he may struggle through it, though their hopes are mingled with much feare. August 30th, 9 o'clock at night."

We have three accounts on the following day. The first is from General Fleetwood to the Lord Deputy of Ireland(a). He says: "The Lord's hand hath bene very sorely upon us in the continuance of his Highness under a very great distemper, called an ague, but mostly his heat gave us the sadd apprehension of danger he was under: and truly little hopes as to man was, but the Lord is pleased to give some little reviving this evening. After a few slumbering sleeps, his pulse better, his water good all this day till now at night there hath been very great fears what the wombe of tomorrow might have brought forth."

Secretary Thurloe writes in much the same strain, hoping the best but fearing the worst(b).

" To H. Cromwell.

"I did by Dr. Worth upon friday, and by an Expresse yesterday, certifie your Excellencye of his highnesse condition; since which, things with him remeyne much as they did, if he doth not declyne more and more. Wee are willinge to hope the best, but truly he is in great daunger, and he is soe weake for the present that he is capable of doeing nothings respectinge to the Publique."

The last letter is in cypher, commenced on Monday and left open till Tuesday to convey the latest intelligence. Be-

(a) Thurloe, vol. vii. p. 367.

(b) Thurloe, vol. vii. p. 366.

fore the postscript was added we may imagine another consultation of the five physicians, and the grave announcement that human means could avail nothing further.

“ *Lord Fauconberg to H. Cromwell(a).*

“ *Monday, Augt. 30, 1658.*

“ Tis with unexpressible grief that I now give your Lordshipp the sad account of His Highnesse’s condition, which all the Physitians have for some days judged dangerous, and now more than ever.

“ *Tuesday, Augt. 31.—Z.* [the Protector] is now beyond all possibility of recovery.”

Public and private prayers were offered up all this time for his recovery, and many, seeking in their wishes an answer to their prayers, gladdened themselves and others with assurances of Cromwell’s recovery. Still there were many to whom his danger was fully evident; and accordingly Secretary Thurloe(b) and another official entered the sick chamber on Monday, to inquire who, in the case of his death, was to be his Highness’s successor? The successor was named in a sealed paper, drawn up above a year before at Hampton Court, and said to be lying in a particular place. The paper was sent for, searched for, but never found. On Thursday morning there was another consultation, and the physician who had been in attendance during the night telling how sorely the Protector had been tried by the last fit, it was supposed he could scarcely survive another day. On that evening Cromwell is understood to have formally named Richard as his successor; or (as suggested by Carlyle) it might be only some heavy-laden “yes, yes,” spoken out of the thick death slumbers, in answer to Thurloe’s question, “Richard?” On the reply to that inquiry hung the destinies of nations.

On this Thursday night, which was to usher in with the

(a) Thurloe, vol. vii. p. 365.

(b) Carlyle, *Op. cit.* vol. iii. p. 456.

dawn the “fortunate day” of the Protector, the anniversary of the great victories of Dunbar and Worcester, Harvey was waiting on his Highness, and has left on record a faithful and most interesting detail of the events which came under his immediate observation(*a*). The Protector, it appears, was very restless most part of the night, speaking often to himself: “Truly God is good; indeed He is; He will not ——.” Then his speech failed him, but, as I apprehend, it was, “He will not leave me.” This saying, “God is good,” he frequently used all along, and would speak it with much cheerfulness and fervour of spirit in the midst of his pains. Again he said: “I would be willing to live to be farther serviceable to God and His people; but my work is done. Yet God will be with His people.”

“He was very restless most part of the night, speaking often to himself; and there being something to drink offered him, he was desired to take the same and endeavour to sleep. Unto which he answered: ‘It is not my design to drink or sleep; but my design is to make what haste I can to begone.’”

“Afterwards, towards morning, he used divers holy expressions, implying much inward consolation and peace; among the rest he spake some exceeding self-debasing words, annihilating and judging himself; and truly it was observed that a public spirit to God’s cause did breathe in him, as in his lifetime, so now to his very last.”(*b*)

When the morrow’s sun arose the Protector was speechless, and breathed his last about a quarter before 4 in the afternoon of Friday, September 3, 1658; a day memorable in history.

(*a*) A Collection of Several Passages concerning his late Highness Oliver Cromwell, in the Time of his Sickness; wherein is related many Expressions upon his Death Bed, together with his Prayer within Two or Three Days before his death. Written by one who was then Groom to his Bed Chamber. London, 9th June, 1659.

(*b*) *Elenchi Motuum Nupcrorum in Anglia.* London, 1661, part ii. p. 417.

It is a remarkable fact that the spirits of two of the mightiest men on record departed amidst a war of elements such as has been but seldom known. A tremendous storm visited England, France, and the Netherlands, on the 30th of August, 1658, and continued for some days to rage with intense fury. Large trees were torn up by the roots in St. James's Park, houses were unroofed,—awful wrecks occurred at sea,—and people were unable to move abroad from the violence of the tempest. Amidst the turmoil of the elements the spirit of the Protector quitted its earthly tenement:

“ Heaven his great soul doth claim,
 In storms as loud as his immortal fame.
 His dying groans,—his last breath shakes our isle,
 And trees, uncut, fall for his funeral pile.

 Nature herself took notice of his death,
 And, sighing, swelled the sea with such a breath,
 That to remotest shores her billows rolled
 The approaching fate of their great ruler told.”—*Waller.*

In like manner a hurricane devastated the island of St. Helena, whilst the death-sweat hung upon the brow of Napoleon; and the roar of the winds doubtless suggested to his wandering mind visions of battles, for to such scenes did his dying words indicate that his thoughts were referred. Thus the resemblance, which in many points existed between the careers of these remarkable men, was completed by the coincidence of the circumstances attending upon their deaths. Each, the hero of many battles, died in his bed, and the last moments of both were disturbed by the uproar of a frightful tempest.

The following account of the autopsy of the Protector is recorded by Dr. Bates: “Dissecto cadavere, in *animalibus* partibus vasa cerebri justo pleniora videbantur; in *vitalibus* pulmones aliquantisper inflammati; sed in *naturalibus* fons mali comparuit: Liene, licet ad aspectum sano, intùs tamen tabo instar amurcæ referto. Corpus etsi exenteratum aromate repletum, ceratisque sextuplicibus involutum, loculo primùm

plumbeo, dein ligneo fortique includeretur, obstacula tamen universa, perrumpente fermento, totas perflavit ædes adeò tetrâ mephiti, ut ante solennes exequias terræ mandari necessarium fuerit.”(a)

Various rumours were circulated as to the cause of the Protector’s death; some said he was poisoned; others, and amongst them the illustrious Pascal, attributed his death to a calculus impacted in the urethra. “Cromwell,” said he, “would have laid waste all Christendom, the royal family would have been for ever ruined, and his own for ever on the ascendant, but for a little grain of sand which stuck in his urethra. Rome herself would have trembled under him but for this little morsel of gravel, for it was nothing else, stopping in that place.”(b)

It is an interesting fact that most of the sovereigns of Europe went into mourning on the intelligence of the death of the Protector; even Louis XIV. showed this outward mark of respect to the memory of the hero of the Commonwealth.

The premature interment of the body rendered it necessary to prepare a figure of wax for the ceremonies of lying in state and the public funeral. Accordingly a waxen effigy was clothed in a suit of uncut velvet, richly laced with gold and trimmed with ermine. On the head was placed a crown, and

(a) “His body being opened, in the animal parts the vessels of the brain seemed to be overcharged. In the vitals the lungs a little inflamed; but in the naturals the source of distemper appeared, the spleen, though sound to the eye, being within filled with matter resembling the lees of oil. Though his bowels were taken out and his body filled with spices, and wrapped in a six-fold cerecloth, and put first in a leaden coffin, and then into a strong wooden one, yet the corruption burst through all, and, the foul smell pervading the whole house, *it was necessary to inter the body before the solemnities of the funeral.*”

(b) “Cromwel allait ravager toute la Chrétienté: la famille royale était perdue, et la sienne à jamais puissante, sans un petit grain de sable qui se mit dans son urètre. Rome même allait trembler sous lui; meme ce petit gravier, qui n’était rien ailleurs, mis en cet endroit, le voilà mort, sa famille abaissee, et le roi rétabli.”—*Pensées de Pascal*, Part i. art. vi. pen. 7.

in the hands a sceptre and a globe; by the side was a suit of armour. This lay in state at Somerset House, in a room hung with black velvet, until the 23rd of November, when the effigy was placed in a stately open chariot covered with black velvet and drawn by six horses. Thus it was conveyed with great pomp to Westminster Abbey, where, on its arrival at the west gate, the figure was carried by ten gentlemen to the east end of the Abbey, and there placed on a sumptuous mausoleum erected for its reception. The expenses of the funeral amounted to £60,000, and fell upon Richard Cromwell, who was subsequently reduced to great straits, principally in consequence of the expense incurred on this occasion.

The restoration of Charles II. took place in May, 1660. Soon after the extravagant rejoicings and dissipations which followed that event^(a), the Government proceeded to wreak its vengeance upon the inanimate remains of the most important supporters of the protectorial dynasty. But revenge did not stop there; one hundred corpses were exhumed, including the aged mother of Cromwell, his beloved daughter, Bridget (wife of Ireton),—and, with shame be it spoken, the renowned Admiral Blake, the Nelson of his day. Their bodies were exposed to every species of insult, and finally thrown into a pit beneath the gallows at Tyburn.

The question of the disinterment of Cromwell was brought before the House of Commons on Tuesday, December 4, 1660. It was referred to the Lords, who made a slight alteration in the resolution, which was finally confirmed by the Commons on the 8th of December; and stands thus on the Commons' Journal:

“Resolved, by the Lords and Commons assembled in Parliament, that the Carcasses of Oliver Cromwell, Henry Ireton,

(a) Charles, it is said, showed his gratitude to heaven for his restoration by passing the first night after his triumphant entrance into London, on the 29th May, 1660, with Mrs. Palmer, afterwards Lady Castlemaine, at the house of Sir Samuel Morland, at Lambeth.—*Personal History of Charles II.* p. 434.

John Bradshaw, and Thomas Pride, whether buried in Westminster Abbey or elsewhere, be with all expedition taken up and drawn upon a hurdle to Tyburne, and there hanged up in their coffins for some time; and after that buried under the said gallows; and that James Norfolke, Esq., Sergeant-at-Arms attending the House of Commons, do take care that this order be put in effectual execution by the Common Executioner for the County of Middlesex, and all such others to whom it shall respectively appertain, who are required in their several places to conform to and observe this order with effect: and the Dean of Westminster(*a*) is desired to give directions to his officers of the Abbey to be assistant in the execution of this order."

In compliance with the order, the bodies of Cromwell(?) and Ireton were taken up out of their graves on the 26th of January, 1661, and the body of Bradshaw(*b*) on the following morning. The coffins, being placed in carts, were carried to the Red Lion, Holborn, and on the 30th of January the last insults were heaped upon them. "To-day (January 30) they were drawn upon sledges to Tyburne. When these three carcasses were at Tyburne they *were pulled out of their coffins*, and hanged at the several angles of that triple tree, where they hung till the sun was set, after which they were taken down, their heads cut off,

(*a*) At the Restoration, Dr. John Earle, or Earles, was made Dean of Westminster. He had been chaplain and tutor to the King when Prince of Wales, and had shared in his banishment. He was subsequently Bishop of Worcester, and died at Oxford, 1665.

The following quaint story is related in Somers's Tracts. A cavalier who witnessed the exhibition of Cromwell's body upon the gallows said to a round-head acquaintance: "Methinks, friend, thy old master stinks damnably." "True," answered the republican, "but you would have smelled worse had you been as near him when living as you are now." The *effects* of fear are proverbial.

(*b*) It has been stated with much confidence that Bradshaw escaped to America, and there died: which of the accounts is true I am unable to determine.

and their loathsome trunks thrown into a deep hole under the gallows.”(a)

The heads were set upon poles on the top of Westminster Hall, Bradshaw's being placed in the middle, immediately over that part of the Hall where he had sat as President at the trial of Charles I.; the other heads were placed on either side of his.

A report currently prevailed that it was not the body of Cromwell which was submitted to the indignities above described. It will be interesting to inquire how far there were grounds for this supposition.

Dr. Bates, in the account of the *post mortem*, distinctly states that in consequence of the rapid decomposition it was necessary to inter the body before the public funeral; but he does not state the place of the interment, nor have we succeeded, after a laborious search, in meeting with any authentic account of this private funeral.

Oldmixon assures us that he was informed by a gentleman who attended the Protector in his last illness, that it was resolved “to wrap it [the corpse] in lead, to put it aboard a barge, and to sink it in the deepest part of the Thames; which was done on the night following, two of his near relations, with some trusty soldiers undertaking to do it.”(b)

There can be little doubt that Oldmixon was imposed on; but another, and more circumstantial account has received extensive credit. It is as follows: “The said regicide Barkstead being Lieutenant of the Tower of London, and a great confidant of the usurper, did among other such confidants, in the time of the usurper's sickness, desire to know where he would be buried? To which he answered: ‘Where he had obtained the greatest victory and glory, and as nigh the spot as could be guessed where the heat of the action was,’ namely, in the

(a) *Mercurius Publicus*, January 24 to 31, 1661.

(b) Oldmixon's *History of the Stuarts*, vol. i. p. 426.

field at Naseby in the county of Northampton. Which accordingly was thus performed. At midnight soon after his death, being first embalmed and wrapped in a leaden coffin, he was in a hearse conveyed to the said field (the said Mr. Barkstead, by order of his father, attending close to the hearse); and being come to the field, there found about the midst of it a grave dug about nine feet deep, with the green sod carefully laid on one side and the mould on the other; in which the coffin being soon put the grave was instantly filled up, and the green sod laid exactly flat upon it, care being taken that the surplus mould was clean taken away. Soon after like care was taken that the said field was entirely ploughed up and sown, three or four years successively, with wheat.”(a)

Whether the above statement was founded in fact it is now impossible to determine. On one hand it is not incompatible with the account given by Bates; nor, on the other, is it supported by the evidence of any other person besides Barkstead. The supposition that such a romantic funeral was performed is not necessary; there is no doubt that the body was buried previous to the public obsequies, but there certainly is no proof, so far as we have been able to discover, that it was interred in Westminster Abbey. It was generally rumoured and extensively believed, both before and after the Restoration, that another corpse had been substituted for that of Cromwell in the coffin supposed to contain it, which was subsequently disinterred; and that the real corpse had been buried elsewhere. When we consider that decomposition had proceeded with such rapidity after death as to render premature interment necessary, it is highly improbable that after the lapse of two years and four months, the corpse of Cromwell should have been in such a state of preservation as to admit of its being suspended from the gallows in the manner described by the journals of the day. Orfila, who has bestowed much attention on the subject of

(a) Harleian Miscellany, vol. ii. p. 286.

decomposition, found that in a majority of cases, bodies were reduced to skeletons at the end of fourteen, fifteen, or at the utmost eighteen months, even when buried in coffins and wrapped in clothes, and this when no unusual signs of putrefaction had appeared before interment. The greater the decomposition before interment the more speedy would be the destruction of the soft parts and dissolution of the ligaments. A body buried in a gravelly soil, such as that upon which Westminster Abbey stands, would, under ordinary circumstances, undergo changes more slowly than if placed in a damp and rich soil; but it may be doubted whether such a locality would much retard the dissolution of bodies in which the putrefactive process had set in immediately after death and made great progress. From inquiries of the Clerk of the Works at the Abbey, we find it uncertain how long bodies lie there without becoming skeletons, as only one has been seen for many years, and that had been buried about sixteen years: it was a perfect skeleton.

Supposing that another corpse had been substituted for that of Cromwell, the imposition would not have been readily detected. On a trial that took place at Edinburgh some years ago, Dr. Barclay, the celebrated anatomist, stated that the longest time he ever knew, during which the features remained recognisable, was a fortnight. We may well suppose that those, whose disgusting duty it was to fulfil the orders of Parliament upon the bodies of the regicides, would be eager to complete their unpleasant task as quickly as possible; they would not be likely to trouble themselves about the identity of the bodies, and the mutilations they performed would render that identification subsequently more difficult, if not impossible.

All things then considered, we are still at a loss to know what really became of the corpse of Cromwell, though we may fairly conclude it was not his body which was subjected to the indignities intended for it by Charles II. and his Parliament.

ART. XII.—*On the Frequency, Diagnosis, and Treatment of Retroflexion or Retroversion of the Unimpregnated Uterus.*

By J. Y. SIMPSON, M.D., Professor of Midwifery in the University of Edinburgh. &c. &c.

PRELIMINARY REMARKS, AND DEFINITION.

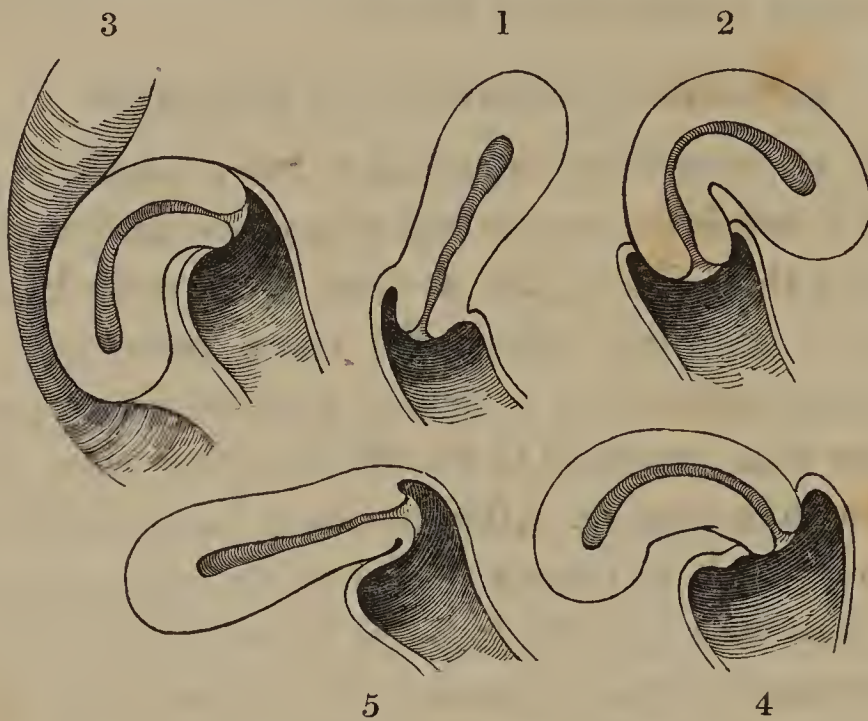
DISEASES are sometimes regarded as rare, merely in consequence of a deficiency on our part of a proper and easy means of detecting them during life, or from our overlooking their existence in the dead body. Not many years ago, for instance, emphysema of the lung and granular degeneration of the kidney were supposed to be affections that were very seldom met with in practice. After, however, Laennec and Bright pointed out simple and ready modes of diagnosing these diseases, they were speedily found to be morbid affections that were extremely common, instead of extremely rare, in their occurrence; and every physician at the present day is now ready to acknowledge their great frequency.

With some of the displacements of the unimpregnated uterus practitioners have long been familiar. In particular, the displacements of the organ downwards, in the form of prolapsus and procidentia, are recognised and acknowledged by all, and elaborately described in every work on female diseases. But displacements of the unimpregnated uterus, in the form of versions or flexions, either of the whole or of the upper part of the uterus, posteriorly, anteriorly, or laterally, have hitherto been looked upon as rare; and this, far more however, from our past want of power of diagnosing them, than from their own infrequency.

In the present communication, it is my object to describe, briefly, some new and simple means that I have practised for the last four or five years for detecting and treating these displacements.

Let me premise that, in the normal and healthy state, the

long axis of the uterus is situated in a line parallel with the line of the axis of the brim of the pelvis, or in the relative direction represented in the accompanying diagram (Fig. 1) (*a*). But the fundus of the uterus, instead of looking upwards, may



be turned downwards and forwards, or downwards and backwards. In Fig. 2 it is represented as directed downwards and forwards, constituting *antiversion*. In Figs. 3, 4, and 5, it is directed downwards and backwards, constituting *retroversion*. These three figures of retroversion (Figs. 3, 4, and 5) represent different forms or degrees of this displacement. The diagram, Fig. 3, represents an aggravated degree of retroversion, taken from a drawing of a case of this displacement by Frank. The mode in which the rectum is impressed by the retroverted uterus is shown in the diagram. He found this instance of displacement of it in the body of a patient who had died of chest disease, but he does not give her previous history(*b*).

Some authors have attempted to draw a specific line of

(*a*) These diagrams are intended to represent verticle or antero-posterior sections of the uterus, and upper part of the vagina. In fig. 1 the uterus is supposed to be placed in its normal position, and the other four figures represent different deviations of the organ from this position.

(*b*) *Opuscula Posthuma*, p. 78.

distinction between the forms of posterior displacement of the uterus portrayed in Figs. 4 and 5, and have described the form given in Fig. 4 as *retroflexion*, and that given in Fig. 5 as *retroversion*. In other words, by retroversion, properly so called, they would understand a displacement backwards of the entire organ (Fig. 5), the flexion taking place in the upper part of the vagina, and the uterus itself not being necessarily changed in form. On the other hand, retroflexion (Fig. 4) is a term proposed to designate the displacement backwards of the fundus only, along with more or less of the body of the uterus; the lower part of the cervix uteri retaining, in some degree, its natural position, and the flexion taking place in the substance of the body, or upper part of the cervix of the organ. But in reality, in the living subject, we meet with all possible intermediate shades and degrees of these posterior displacements; and I believe it to be an incorrect and unnecessary refinement to draw such theoretical nosological distinctions between them. Practically and pathologically, there is no true difference between these modifications or degrees of this morbid position of the uterus; and I shall in my subsequent remarks include them, and all other varieties of posterior displacement, under the generic term of Retroversion. Farther, in order to avoid repetition, I shall in the present communication treat only of retroversion of the uterus. It will be found that the same principles of diagnosis and treatment apply, *mutatis mutandis*, to the almost equally common displacement of the uterus which I have defined above as Antiversion.

ALLEGED RARITY OF RETROVERSION OF THE UNIMPREGNATED UTERUS.

In all our English systematic books on midwifery and female diseases, down to the very latest works, retroversion of the *unimpregnated* uterus is described as an exceedingly rare disease.

In his work on the Diseases peculiar to Women (1846),

Dr. Ashwell tells us that he has “been long in the habit of observing uterine organic disease;” but he states “the published cases of retroversion are nearly silent on any other cause than pregnancy;” and he speaks of this as the result also of his own observations(*a*).

Dr. Burns (1844) says: “Mr. Pearson relates a case where the uterus was retroverted in consequence of being scirrhus. Dr. Marcet gives an instance where the uterus was retroverted without pregnancy, producing constipation and vomiting. Dr. Alken (of Bergheim), relates a case where a woman, after suffering from difficulty of passing the urine and stools, had in fourteen days complete retention of both. The bladder reached to the umbilicus; the extremities were cold, the pulse small, vomiting, &c.: the urine was drawn off. After bleeding and the warm bath, force was employed in opposite directions, both from the rectum and vagina, and in an hour the uterus was replaced. It was, however, displaced again next day, but was reduced, and the retroversion did not return. The uterus was unimpregnated.” Dr. Burns himself quotes these cases in illustration of his own opinion, that retroversion, besides occurring during pregnancy, “*may also be produced when the womb is enlarged to a certain degree by disease.*”(b)

Writing in 1844, Dr. Churchill observes: “I have known retroversion to happen the first day of a menstrual period, when the weight of the uterus was increased by afflux of blood. Mr. Pearson and Dr. Blundell met with cases of retroversion caused by scirrhus. Callisen and Blundell mention cases where this accident followed delivery, *but such must be exceedingly rare.*”(c)

The experience of the few last years has amply convinced me that these opinions regarding the supposed rarity of retro-

(a) Practical Treatise on the Diseases peculiar to Women, p. 598.

(b) Burns's Principles of Midwifery, p. 288.

(c) On the Principal Diseases of Females, p. 267.

version of the unimpregnated uterus are entirely wrong. Since discovering an easy method of detecting its existence, I have found it one of the most common and frequent displacements and affections of the unimpregnated uterus(*a*). My observations, in this respect, have been fully confirmed by several of my professional brethren in Edinburgh. Three or four years ago I pointed out its frequency, mode of diagnosis, and treatment, to my friends, Drs. Rigby and Protheroe Smith, of London; and I have much pleasure in adding, that their extensive opportunities at the London Hospital for Uterine Diseases have enabled them and the pupils of that useful institution to confirm amply the justness of my previous inquiries, with regard to the great frequency of retroversion, and the advantages of my proposed methods of detecting and treating it.

SYMPTOMS AND DIAGNOSIS OF RETROVERSION.

General remarks.—The morbid conditions of the uterus are recognized in practice by two classes of symptoms, viz., the *functional and physical*. The evidence derived from these two different classes is different in its nature and value.

All accoucheurs will, I believe, readily admit that the two following observations hold good with regard to the symptoms and diagnosis of utero-gestation, viz.:—1, That the state of the uterus in pregnancy (one and identical as it is) is liable to be accompanied, in different women, or in the same woman in different pregnancies, with very different local, sympathetic, and general effects or functional symptoms; and, 2, that the usual concurrence and succession of functional phenomena, to which pregnancy generally gives rise, may be induced by other states and irritations of the organ than utero-gestation.

The same two important inferences are true in regard to

(*a*) In April, 1843, I stated these results in a communication to the Medico-Chirurgical Society of Edinburgh; showed the frequency of retroversion of the unimpregnated uterus, and its means of detection and cure. See Monthly Journal of Medical Science for 1843, p. 660.

the various individual morbid affections of the uterus. The marked uncertainty which exists respecting the local and constitutional effects produced by the condition of the organ in *pregnancy*, holds equally good regarding the effects produced by it in its different states of actual *disease*. In uterine disease, as in pregnancy, the same specific affection of the organ excites sometimes very different phenomena in different cases; and the same specific phenomena frequently result from affections of the organ that are entirely at variance with each other in their pathological character, in their course, and in the treatment required.

In deciding upon the existence or non-existence of pregnancy, especially in any case of importance or doubt, no medical man, who valued his own professional character, would deem himself justified in offering a final and decisive opinion from the study of the mere functional symptoms only; nor would he venture to form a definite judgment, until he had made a sufficiently accurate local or *physical* examination of the state of the uterus itself. In deciding, in the same way, upon the pathological nature, and consequently upon the line of treatment which any marked uterine disease may require, we believe exactly the same caution to be necessary, and the same local or physical examination to be demanded, where there exists any doubt, and where the examination is not otherwise counter-indicated. It is, assuredly, only by doing so that we can hope, with any certainty, to decide upon the *specific* nature of the uterine disease that may be present. We may make the general diagnosis of the existence of uterine disease by the consideration of the *functional* derangements to which such diseases give rise. We can only make the differential diagnosis of what the specific disease of the uterus really is, by aiding this by the physical examination of the structural condition of the organ itself. The study of the rational or functional symptoms may show that the organ is affected, without showing us how it is affected. They point out

the fact of the uterus being the seat of some diseased state or action, without pointing out what is the specific nature of that diseased state or action. To gain this last most important information, we must have recourse to the study of the physical signs or symptoms of uterine disease, in addition to the functional. In other words, we must attempt to ascertain the actual physical or structural condition of the uterus by the tactile and visual examination of the affected organ itself. We must endeavour to decipher and read its morbid anatomy on the living body, by the careful employment of the senses of touch and sight. Hence, then, I attach far less importance to the functional symptoms of retroversion which I have first to enumerate, than to the physical signs, which I shall afterwards consider.

FUNCTIONAL SYMPTOMS OR DERANGEMENTS.

In some cases of retroversion of the unimpregnated uterus (more especially when the displacement is chronic and the pelvis large), as in some other forms of serious uterine disease and of pregnancy, few or no marked functional or sympathetic symptoms, either local or general, are present; while in other instances the attendant functional derangements and irritations are excessively severe and distressing. And in this, as in other uterine affections, between these two extremes we may meet with every shade of difference.

In retroversion, as in other morbid conditions and diseases of the unimpregnated uterus, the accompanying sympathetic derangements or symptoms are, when they are well and highly marked, more or less perfect imitations of the secondary phenomena of pregnancy. Dyspeptic and hysterical symptoms are sometimes present, with local neuralgic pains in the *mammæ*; in some portions of the vertebral column; or, what is still more frequent, in the parietes of the abdomen or chest, and more especially in a limited spot beneath the left mamma. The displaced position of the uterus often gives rise to mechanical irritations and symptoms of the same kind as if the organ were

actually morbidly enlarged. Constipation and impeded defæcation are frequent results, partly from the fundus of the displaced uterus physically compressing the caliber of the rectum, and partly from its producing a functional inability to expel the feculent contents of the bowel through the lowest part of the canal. Occasionally the bowel is irritated, and there are discharged from it, from time to time, quantities of mucous or fibrinous-like effusions. The bladder frequently suffers from dysuria or retention; and, much more rarely, I have seen a degree of incontinence, especially where the urine has become phosphatic, from the want of power in some cases of completely emptying the bladder. Symptoms of weight, tension, and bearing down in the regions of the uterus and rectum, with dragging at the loins and in the regions of the uterine ligaments, are very common. Pains often stretch down one or both of the lower extremities. Occasionally there is an inability to bear carriage exercise, and walking and standing speedily produce fatigue. In a few rare cases I have known the patients to find themselves forced to remain almost constantly in the horizontal position, from the intense and overpowering feeling of pressure and malaise which the erect posture always brought on, and the power of standing and progression restored by the spontaneous or artificial reposition of the uterus. In general, all the symptoms, local and constitutional, which I have alluded to, are aggravated more or less by exercise in the erect position; and they are more particularly liable to be increased in their intensity when the uterus becomes periodically congested and heavier, at the recurrence of each menstrual period.

In some cases of retroversion the menstrual function is not morbidly altered. In other cases, however, I have seen the catamenial discharge affected, but affected most oppositely and variously,—occasionally in the way of amenorrhœa, sometimes of dysmenorrhœa, and not unfrequently of menorrhagia, particularly after miscarriage.

The mucous secretion of the uterus is not altered by retroversion, unless congestion or inflammation supervene; it

may then change into leucorrhœa. Occasionally there is a sudden temporary increase of discharge, once or oftener during the intervals between the catamenial periods, as if it had collected in the cavity of the retroverted organ, and escaped, or become expelled, only from time to time.

When a patient with a retroverted uterus becomes pregnant, abortion is apt to take place. But I have seen various instances in which the uterus became spontaneously rectified in position as it became larger, and utero-gestation went on to the full time. Usually the existence of retroversion interferes with the function of conception. Often it is a cause of sterility, as shown by impregnation taking place after the displacement is rectified. In women who have borne children at distances of several years between each, I have several times found the uterus permanently retroverted in the unimpregnated state.

The functional symptoms that I have enumerated may make us suspect the existence of retroversion of the uterus. But retroversion may be present without most, or almost any of them; and they may be present with other diseases besides retroversion. Hence the necessity here, as elsewhere,—in this, as in other uterine affections,—of having recourse to the physical examination of the uterus, in order to decide and determine its actual morbid state.

PHYSICAL SIGNS OF RETROVERSION.

The usual physical means of diagnosis of uterine disease are reducible to the observation of phenomena by the senses of sight and touch.(a)

(a) In a few cases the sense of hearing is also had recourse to. I have repeatedly heard with the stethoscope a sound like the placental souffle in large fibrous tumours of the uterus. The uterine walls around these tumours are sometimes hypertrophied and thickened exactly like the walls of the uterus in pregnancy, and their vascular structure undergoes a similar increase and mutation. Hence, probably, the origin of the sound in question. When present, I believe it to serve, among others, as a diagnostic mark between fibrous tumours of the uterus and ovarian tumours.

Speculum.—The employment of sight, by means of the speculum, assists us in no respect in the diagnosis of retroversion.

Tactile Examination.—On an accurate vaginal examination we feel an apparent projection of a solid tumour between the uterus and rectum, when applying our finger, or fingers, behind the cervix uteri to the *posterior* part of the upper reflexion, or roof of the vagina. (At *a*, Plate I. fig. 1.) The same firm mass is felt through the anterior wall of the bowel in making an anal examination. The tumour or mass feels smooth and roundish on its surface; is often sensitive on pressure, more especially if the retroversion is recent, or when the posterior wall is (as often happens) congested and engorged; is generally capable of being moved more or less easily by the finger; and varies in size according to the degree of displacement, and the morbid or healthy state of the uterine walls.

The os and cervix uteri may be displaced forwards, or they may maintain their usual position. The whole body of the uterus is often prolapsed and lower than its natural situation; but occasionally it is quite normal in these respects.

How are we to determine that the solid tumour lying upon the back part of the roof of the vagina, and between the rectum and uterus, is the displaced fundus and body of the uterus?

If the patient be unusually thin and emaciated, and we examine simultaneously with one or two fingers of the right hand placed in the vagina, and those of the left hand placed above the pubis, we can almost feel the uterus between the two hands, and ascertain the whole position and relations of the organ; but this, however, can very rarely be accomplished.

Generally, we have by tactile examination no other means of knowing the probability of the apparent tumour being formed by the displaced fundus and body of the uterus, than by tracing along with the finger, between the tumour and cervix uteri, a direct *continuity* of structure, and this may be done either *per vaginam* or *per rectum*. But this physical sign is in

itself apt to lead into error, if alone depended on. If the uterus is retroflected more than retroverted, the continuity cannot be traced at the point or angle of flexion; while, on the other hand, a fibrous or other tumour attached to the back wall of the uterus sometimes may be distinctly traced to be *in continuity* with the uterine structure, and moves with all motions imparted to the cervix. Nor is the position of the os uteri any more certain guide, for sometimes it is not displaced when the fundus is so; and it may be thrown forwards by a tumour, when the fundus retains its normal position.

Other and additional means, therefore, of diagnosis become necessary. M. Pereyra, of Bordeaux, suggested, a few years ago, to attempt to obtain a more correct physical diagnosis for retroversion, by conducting the examination by the rectum or bladder. "The difficulty" (he observes) "of distinguishing diseased growths from retroversion of the uterus is greater than might at first be supposed; the only way of attaining a correct diagnosis is to ascertain if the uterus be or not in its normal situation. Two methods are proposed for this end; either the forefinger is introduced into the rectum, or a male catheter into the bladder, by the extremity of which instrument an exploratory process is conducted. The latter mode, treated of by Malgaigne(*a*), requires, of course, some tact, but to the experienced surgeon it will give the more certain indication."*(b)*

The determination of the case by an examination *per rectum* is impossible; and I have elsewhere shown that Malgaigne's method of diagnosis is attended with difficulties and uncertainties that render it quite useless in practice(*c*).

A far more simple and certain method is to determine the precise situation of the fundus and body of the uterus, not through either the intestinal canal behind, or the urinary canal in front, but through the intermediate genital canal itself. The

(*a*) *These du Concours*, 1833.

(*b*) *American Journal of Medical Sciences*, April, 1843, p. 483.

(*c*) See *Monthly Journal of Medical Science* for 1844, p. 214.

proper canal of the uterus is, of course, too narrow to allow us to introduce our finger into it; but by passing into it a slender metallic finger (if we so speak), we can easily by it ascertain, amongst other matters, any change in the *direction* of its cavity, and consequently in the direction of the body and fundus of the uterus itself. The employment of the uterine bougie readily enables us to do this.

Examination by the Uterine Sound or Bougie.—The form, &c., of the uterine bougie is represented in Plate I., and consequently requires little or no description. Some years ago I gave a full account of the instrument, and the mode of using it(*a*). It has the configuration of a slender male catheter; tapering in form; knobbed at the extremity; divided into sections, so as to measure, when required, the length of the uterine cavity; and provided with a handle, smooth on its posterior surface and roughened on its anterior (that surface represented in the Plate), in order to make the operator constantly aware of the position and direction of the point and concavity of the instrument, when it is passed into and hid in the uterine cavity(*b*).

(*a*) See Monthly Journal of Medical Science for 1843, p. 703, &c.

(*b*) The normal length of the cavity of the healthy uterus is two and a half inches, and at that point the bougie is marked, as seen in the figure, by a single elevation or knob, which can be readily felt when the instrument is under use, and at once advertises the practitioner that it is introduced the full length of the uterus. When the uterus is hypertrophied,—when enlarged with fibrous tumours, &c., &c.,—the cavity is elongated, and the degree of its elongation can be easily measured by the bougie. There are two elevations upon it, at four and a half inches from the point, in order to enable the physician to take his measurements easily without withdrawing it. Elsewhere than at two and a half and four and a half inches from the point there are depressions or grooves at inch distances for the same purpose. In cases in which the uterine cavity is diminished in length by inversion, &c., the bougie equally enables us to ascertain that point. The whole length of the stem is nine inches. It is represented in the plate as bent in the angled form in which I generally use it; but, being made of silver, its bend can be readily changed, increased, or diminished, to suit different cases and indications of use.

This instrument can be easily and readily passed into the uterine cavity, so as to enable us to measure its depth; to examine, more distinctly than we have otherwise the power of doing, its fundus, body, and cervix; to ascertain the presence of strictures in the canal; diseased states of the cavity, and walls of the organ, &c. I have used it daily for five or six years past, and have never, in any instance, seen any serious irritation, or any bad result to the uterus, follow its employment; whilst it has enabled me and others to detect and discriminate morbid conditions of this organ, that were, by any other means, entirely beyond the reach of correct diagnosis.

Its power of detecting retroversion of the unimpregnated uterus depends, as I have already stated, upon its directly and easily enabling us to ascertain the *direction of the uterine cavity*, and hence of the body and fundus of the uterus, which form the walls of that cavity.

When the uterus is in its normal position, and is placed with the long axis of the organ, and consequently the long axis of its cavity, in a line parallel with the axis of the pelvic brim, the point of the bougie, when introduced into the uterus, passes upwards and forwards in the direction of the umbilicus; and the concavity of the instrument (or the rough side of its handle) is directed towards the symphysis pubis. When, however, the uterus is retroverted, the point of the instrument, instead of passing up vertically and forwards, is resisted in that direction, and can only be passed horizontally and backwards towards the hollow of the sacrum; its concavity and the rough side of its handle thus looking towards the sacrum instead of towards the pubis, and at once showing the altered position of the cavity, body, and fundus of the uterus.

But the diagnosis may be made out still more completely and accurately by the further use of the bougie. For,—

1. Besides showing in the manner stated, the direction of the uterine cavity, and hence of the body and fundus of the uterus, by the direction in which the instrument itself passes,—

2. We can ascertain by a vaginal or anal examination of the supposed tumour, that the extremity of the uterine bougie is lodged in *its* centre, showing the swelling to be produced merely by the displaced fundus of the uterus; and,—

3. After this, by turning the bougie gently round so as to bring the concavity, or the rough side of its handle, to look to the pubis, instead of looking, as at first, to the sacrum, we can replace the uterus and feel it upon the bougie if required, through the abdominal parietes in front. We can thus certify to our own minds that we have nothing on the point of the instrument except the fundus uteri. And again, if necessary, by introducing a finger into the rectum or vagina, and then retroverting or replacing the uterus at will, we can as it were make and unmake, as often as required, the apparent tumour lying between the uterus and rectum, and thus further prove this tumour to be nothing whatever but the retroverted fundus uteri.

DIFFERENTIAL DIAGNOSIS OF RETROVERSION.

I have seen retroversion of the unimpregnated uterus not only very frequently and entirely overlooked, but also very often mistaken for other morbid states and lesions of the uterus. I shall point out the principal morbid conditions with which I have known it to be confounded, and the modes of distinguishing retroversion from them.

1. *From Pregnancy.*—In a considerable number of instances I have had occasion to see the feeling of fulness and apparent increased size of the uterus in retroversion mistaken for the earlier periods of utero-gestation. A few weeks ago I was called to a case at a distance from Edinburgh, where this error of diagnosis had led to much distress: from an unmarried lady, suffering severely from dysmenorrhœa and menorrhagia, being supposed by her medical attendant to be pregnant and aborting, from his mistaking the retroverted fundus and body of the uterus for general enlargement of the organ. This error

is still more liable to be committed when the retroversion is accompanied, as it sometimes is, with occasional amenorrhœa. Two or three years ago, I had under my care a patient with retroversion of the uterus and temporary amenorrhœa, who had been pronounced as undoubtedly pregnant, by her usual medical attendant, an excellent practitioner and lecturer on midwifery in another medical school. About the same time I had a patient under my own care with retroversion, who passed three successive menstrual periods; but I was certain, from no corresponding increase in the size of the retroverted uterus, that she was not pregnant. In this case the difficulty of the diagnosis was rendered the greater in consequence of the areolæ becoming darker and their follicles enlarged as in pregnancy. A drawing was made of the areolæ at the time; and afterwards, when the uterus was replaced, and the patient at last became pregnant, the areolæ were most certainly not deeper marked at the same period in the true, than what they had been in the spurious pregnancy.

2. *From Fibrous and other Tumours in the posterior Wall, &c., of the Uterus*.—This is one of the most frequent errors of diagnosis which I have met with, and one into which, in former times, I myself frequently fell.

The attendant functional symptoms are in all respects the same; and on examination there is the same continuity of structure felt between the cervix uteri and the body lying between it and the rectum. In this way retroversion of the uterus has very often been mistaken for a morbid growth upon the back part of the uterus, and even described as such(a).

(a) Dr. Hamilton, in his *Outlines of Midwifery*, describes retroversion as an “unequal projection” on the posterior part of the uterus. I have seen one or two patients whom he had pronounced in writing to be labouring under these “projections,” and where the apparent tumour was the retroverted fundus uteri. In the work quoted he observes: “An unequal projection of different sizes is occasionally discovered on the posterior part of the uterus, resembling in shape the tubera which form upon the surface

But the introduction and direction of the uterine bougie at once enables us to solve the difficulty. The bougie passes backwards into the very body and centre of the apparent tumour, at once showing it to be the retroverted fundus uteri. It may be proper, however, to add, that instances are by no means rare in practice of the presence of small fibrous tumours attached to the posterior wall of the uterus being conjoined with retroversion.

I have known the retroverted fundus uteri to be pronounced a carcinomatous tumour, local thickening of the back walls, &c. The differential diagnosis is readily made, in the way I have just mentioned. When it has occurred after delivery I have seen it mistaken for the common puerperal hypertrophy of the uterus. The means of differential diagnosis are the same. And cases, in which the apparent swelling formed by the back wall of the deflected uterus have been (out of the pregnant and puerperal states) mistaken for simple general hypertrophy of the uterus, and assiduously treated by mercury, iodine, &c. &c., have frequently come under my notice.

3. *From Ovarian Tumours in their earlier Stages.*—When of the liver, but differing from tubera in being of a more resisting texture, and in being pained on pressure. From the cases which have fallen under the author's notice, it appears to him that the following is the progress of this fortunately rare disease. At first there is a slight enlargement of the uterus, with a little thickening and tenderness of its posterior surface, occasioning a sense of bearing down on making any unusual exertion, and an obscure gnawing pain towards the back part of the pelvis. In the progress of the disease the posterior surface of the uterus becomes more and more unequal, till at last a distinct projection like a walnut, or even larger, can be felt on examination *per anum*. At this stage of the disease the patient can neither stand nor sit upright, such is the continued uneasiness in the back part of the pelvis. It is remarkable that in this, as well as in several other of the local diseases of the uterus, the catamenia continue to flow as usual. In the early stages of this disease the progress has been generally checked by the means employed in cases of chronic enlargement of the uterus; but in the latter stages, that is, after the circumscribed projection has taken place, no other means of treatment have hitherto proved successful."—*Outlines of Midwifery*, p. 134.

the ovary enlarges from multilocular degeneration, or other causes, it almost always first grows downwards into the space lying between the back wall of the uterus and the anterior part of the rectum, resting thus upon the roof of the vagina behind. In its enlargement it almost invariably pushes the uterus anteriorly, and *before* it; and this relative position of the uterus to ovarian tumours is often an important matter in the diagnosis of ovarian disease in its later and more advanced stages. At first the body of the enlarged ovary may be mistaken for the retroverted fundus uteri, more especially as the os uteri is generally displaced forwards. But the introduction of the bougie shows the uterus to be in its normal situation, and at the same time generally enables us to draw the uterus so far forwards as to make us certain that it is not attached to the existing tumour, and does not form one continuous structure with it. So far the evidence is merely negative. If further evidence of a positive kind, of the nature of the tumour, is required, we may obtain it by the use of a fine exploring needle, a means of diagnosis of great value in this as in other complications.

4. *From Pelvic Cellulitis*.—Inflammation of the cellular tissue of the pelvis, limited or more diffuse, is certainly a frequent disease, both after delivery and in the unimpregnated state. I have seen it now at many different periods of life, from six years up to sixty. It is generally spoken of as “pelvic abscess,” but improperly so, for it does not always necessarily terminate in abscess, any more than pleurisy necessarily terminates in empyema. When the inflammatory effusion seems limited, as it sometimes is, to the space between the uterus and rectum, the firm tumour, or swelling formed by it, may be mistaken for retroversion. The direction of the bougie, when introduced into the uterus, will show us, however, that the uterus is *not* retroverted; and the accompanying symptoms, and, if necessary, the use of the exploring needle, will enable us to complete the diagnosis.

5. *From Extra-uterine Conceptions lodged between the Uterus and Rectum.*—Nauche, in his *Maladies des Femmes* (p. 108), mentions a case in which an extra-uterine conception was mistaken for a retroverted uterus. I lately met with an instance where it was a matter at first of great doubt and difficulty, whether the tumour lying on the anterior wall of the rectum, and accompanied with sudden symptoms of rupture into the peritonæum, was an enlarged and retroverted uterus, or an extra-uterine conception. Examinations with the bougie at once showed the uterus to be both normal in its size and in its position.

6. *From Organic Disease in the Anterior Wall of the Rectum.*—In a case of Dr. Marnoch's, the tactile examination of a tumour lying between the uterus and rectum gave me the idea that it was a retroverted uterus. The employment of the bougie, however, showed the uterus to be normally placed. On more minutely examining *per anum*, the anterior wall of the rectum was found much thickened and indurated; the patient died some months subsequently of carcinomatous stricture and disease of the rectum.

7. *From Stricture of the Rectum.*—The diagram of retroversion in Plate I. shows how readily this disease may be mistaken for stricture of the rectum; the deflected fundus uteri pressing in upon, and sometimes diminishing greatly, the caliber of the bowel. But the use of the bougie always readily dispels the difficulty, by showing first the direction of the fundus, and secondly (when the instrument is turned round), by at once removing the fundus and the supposed stricture. But I know that the mistake of confounding a retroverted uterus with stricture of the rectum is by no means infrequent in practice. Sir Charles Bell states that he had found a surgeon employing rectum bougies for years, on account of an obstruction from displaced uterus(*a*). A case of retroversion of the

(*a*) Institutes of Surgery, vol. ii. p. 216.

unimpregnated uterus some time ago came under the care of a medical friend of mine in Edinburgh. He discovered the displacement, introduced the wire pessary (third form), which I shall afterwards describe, and at once rendered his patient comfortable, and capable of taking exercise. She returned to her own distant home, with a line to her physician, who declared he knew the instrument well, but thought it necessary to take it out at the menstrual period, and could not again replace it. Another distinguished obstetrician was called in his place. He said the uterus was enlarged, and not displaced; used leeches, &c. Not finding the desired benefit from this treatment, the lady placed herself under the care of an eminent surgeon, who pronounced all the previous opinions wrong, and that the real disease was stricture of the rectum. The last time I heard of the patient she was submitting to the frequent use of bougies for the cure of this imaginary affection.

RETROVERSION LIABLE TO ESCAPE NOTICE EVEN IN POST
MORTEM EXAMINATIONS.

In the preceding pages I have spoken of retroversion of the unimpregnated uterus being with extreme frequency entirely mistaken in practice, and overlooked during life. But even after death the same error is liable to occur. In the Edinburgh Medical and Surgical Journal for 1822, Dr. Robertson details (page 525) a case most illustrative of this remark. A woman died of tenesmus, constipation, and symptoms of obstructed bowel, ending in enteritis. Before death the rectum was examined for the obstruction, and the gut was found "encroached on by a tumour which, *per vaginam*, was discovered to be the uterus." "But," adds Dr. R., "on the *post mortem* examination, to our surprise, no uterine *tumour* was found to encroach on the rectum." In this, as in other cases in which retroversion of the uterus has existed, the morbid displacement has, on the inspection of the body after death, escaped notice, from the form and structure, and not the mere

position, of the uterus being looked to. In our common *post mortem* method of examining the pelvic contents from above, the attention of the morbid anatomist is rarely or never directed to the observation of any mere deflection of the fundus and body of the uterus; and when once the parts are dragged out of their situation, it is impossible to ascertain the amount and degree of retroversion.

ORGANIC STATE OF THE UTERUS IN RETROVERSION.

This is very variable. I have seen it several times co-existing with the presence of fibrous tumours in the uterine parietes. More frequently the uterus is hypertrophied merely from chronic metritis, and the enlargement more especially marked in the posterior walls. The organ is at the same time elongated as well as hypertrophied; and its cavity, instead of measuring two and a half inches in length, will measure three or three and a half inches. Many authors seem to think that enlargement of the uterus, under some form or another, is a necessary preliminary to retroversion taking place, and that we never meet with the displacement without finding it combined with some increase in the size of the organ. Such, however, is assuredly not the fact. In a large proportion of cases the retroverted uterus is in no degree enlarged or increased in volume, but natural in size. Nay, I have on more than one occasion seen the uterus retroverted when it was less than normal in its length and dimensions. Latterly I have happened to be consulted in several instances of amenorrhœa in women advanced beyond twenty or thirty years of life, in whom the menstrual secretion had never appeared, and where, on examination, the uterus was found imperfectly developed, and the length of its cavity, as measured by the uterine bougie, was not above one, one and a half, or at most two inches. In one of these instances, in which the cavity of the uterus was only one and a half inches long, the fundus of the preternaturally small organ was, at the same time, distinctly retroverted,

and felt like a small roundish tumour through the vagina and rectum. Some time ago I saw, with my friend Dr. Girdwood, of Paddington, a case still more rare. The uterus was retroverted, as he had ascertained by examination and the use of the bougie. There was a second orifice in the cervix uteri. On introducing a second bougie into this additional orifice, I found it pass into a second uterine cavity, quite separated and distinct from the first, and with the fundus of each diverging from the other. In fact, the uterus was not only retroverted, but double. It is, as far as I am aware, the first case in which a double uterus has been distinctly diagnosticated upon the living subject.

TREATMENT OF RETROVERSION OF THE UNIMPREGNATED UTERUS.

When recent, and occurring after some straining effort, or from congestion and inflammation of the uterus, or subsequent to delivery, mere replacement of the organ by the bougie or finger will sometimes suffice, provided, along with it, we enforce for a length of time the horizontal position, or rather lying on the side or face, prevent over-distension of the rectum and bladder, reduce any local congestive or inflammatory state that may be present, and restore the local tone of the relaxed soft structures of the pelvis by astringent vaginal injections, or by the use of medicated pessaries made with ointment containing extract of oak-bark, or tannin, or iodide of lead, &c.

But such simple treatment rarely succeeds, even when the retroversion is recent; and still more seldom when, as is almost always the case in practice, the displacement is already chronic and confirmed. Under these circumstances we have three principal indications to perform :—1. To remove, if necessary and possible, any morbid action in the uterine structures that may exist along with the displacement. 2. To restore the uterus to its normal situation. 3. To use means to retain it

in its replaced and natural position. I shall speak separately of these several indications.

1. *Removal of any Morbid State of the Uterus that may co-exist with the Retroversion.*—Not unfrequently, along with retroversion, the uterus is congested and hypertrophied, and the uterine bougie shows it to be elongated half an inch or more. Sometimes chronic inflammation of the body of the organ is present, and more especially in its posterior wall, which often feels tumefied and tender to the touch: or the cervix is enlarged, condensed, and ulcerated, especially in its posterior lip. The os uteri, or the uterine canal, an inch or so above the os, is not unfrequently contracted and strictured, and may have been giving rise to retention of the menses and congestion. Occasionally one or both ovaries can be felt through the roof of the vagina, enlarged and painful from congestive or inflammatory irritation. As a general rule, all these morbid states should, when possible, be reduced and removed, or at least moderated by their appropriate means of treatment, before engaging with the other indications to be fulfilled, particularly when they are apparently in any respect the *cause* of the retroversion. More frequently, however, they are the *effects* of the retroversion; and in this latter case our means of combating them will usually fail, or only partially succeed, till we have first restored the organ to its natural form and situation, by our fulfilling the second and third indications which I have laid down, before we fulfil the first. When the retroversion is combined with and produced by the presence of fibrous tumours in the posterior wall or fundus of the uterus, the first indication cannot, of course, be accomplished, as we as yet possess no certain power of removing and discussing these tumours.

2. *Restoration of the Uterus to its Normal Situation.*—Most authors who have treated of retroversion of the unimpregnated uterus have spoken as if its replacement could generally be fully effected by the fingers alone. In practice, however, its

complete replacement by this means is almost always found to be impossible. By pushing up the retroverted fundus, or by pulling down the cervix, or by combining simultaneously both measures, the replacement can sometimes be effected by the fingers alone; but rarely. For it is scarcely ever possible, by any pressure which we can make with the fingers upon the posterior surface of the uterus, either through the vagina or through the rectum, to push the fundus uteri upwards and forwards to a sufficient degree. Some authors, finding their fingers to fail, from their shortness, &c. have proposed instruments for the purpose. Richter and Evrat suggested a species of vectis or probang, to be used through the rectum. Bellanger, Lallemand, and Duges, have spoken of introducing a strong sound into the urethra and bladder, to act as a lever upon the os uteri. Siebold and Drejer attempted to replace the uterus by instruments made of whalebone, introduced into the vagina, and made to press by their upper and blunted extremities upon the fundus uteri through the upper and back portion of the vaginal parietes.

The simplest and most easy method of temporarily replacing the retroverted uterus is by introducing an instrument into the cavity of the organ itself, and using it as a mechanical means, or lever, for the purpose. In treating of the physical diagnosis of retroversion, I have shewn how the uterine bougie can be readily used for this purpose. The very means of diagnosis are thus, at the same time, the very means of replacement.

3. *Retention of the Replaced Uterus in its Normal Situation.*

—This is necessary to effect a cure. Some, as Schmitt and Schweighœuser, have supposed that it could be accomplished by the mere position of the patient, and that lying on the side or face, with the pelvis somewhat elevated, would be sufficient. I have already stated that in few,—exceedingly few cases, indeed,—will it be found to succeed, and these only of recent origin. Instruments for the purpose of supporting and retain-

ing the uterus *in situ* are therefore necessary. They have been proposed to be worn in the rectum(*a*) and in the vagina(*b*). Various forms and modifications of vaginal pessaries have been invented by Hervez, Drejer, Sander, &c. They are all intended either to press principally, by guarded stems or otherwise, through the roof of the vagina, upon the tumour formed by the fundus uteri; or to keep the cervix uteri pushed back, with the view of throwing the fundus forwards. I have used sponges for this last purpose; and Siebold and Kilian state, that they believe they form the best pessaries for retroversion, modified according to the necessities of each case. Moreau conceives that the principle of treatment should be to fill up the space between the uterus and rectum, so as to take away any room for the retroversion to recur: he uses a kind of caoutchouc pessary for this purpose. Two years ago I removed from a patient one which had been worn for some months, and which Moreau himself had introduced. It had not in any degree benefited the retroversion.

After detecting the ease and certainty with which the uterine bougie could be used for the discovery of retroversion, and for the temporary restitution of the organ, it appeared to me that the most direct and perfect method of retaining the replaced uterus *in situ* would consist in some means of retaining and fixing, as it were, the end of the bougie for a time in the uterine cavity. I soon found that the restoration of the uterus temporarily, from day to day, with the bougie, was insufficient, and that some more permanent means of keeping the organ replaced and retained were necessary. But one primary and important point required to be solved:—Would the uterus bear with impunity the presence of such a body for a length of time in its own cavity? My first experiment on the subject I made with extreme anxiety, and great misgivings as to the results. I watched the case from hour to hour, and from day

(*a*) Ætius, Vernandois, Desault.(*b*) Colombat, Dugès, &c.

to day, and was delighted to find that the presence of the instrument was borne by the uterus without irritation or annoyance. The patient was almost entirely incapacitated from walking, by retroversion of the uterus, before it was used. After thus wearing for some months a wire pessary in the cavity of the uterus, she so far recovered as to bear two children, one in this country, and subsequently another in India. I soon found, in other cases, that, when the instrument was once properly fitted and adjusted, it could be borne with perfect safety, and without any pain or inconvenience. Occasionally I have since met with cases in which the uterine pessary has created so much irritation as to render its withdrawal necessary in a few days after it was introduced. But these cases have been exceptions, and by no means common or frequent exceptions, to the general rule; and I have allowed the instrument sometimes to remain in the uterus for two, four, six months, or longer. Within the last few weeks I have removed two uterine pessaries, one of which I had introduced eight, and the other nearly ten months previously. They are not to be interfered with at the menstrual periods. Sometimes, though by no means always, a slight menorrhagia follows their use, particularly for the first period or two after their introduction.

It is unnecessary to detail the changes of form which were tried, and the difficulties I met with, in first attempting to construct a proper uterine pessary. The three forms which I have been in the habit of using for the last three or four years are those depicted in Plate II.(a)

First form of Uterine Pessary, Plate II. fig. 4.—The stem of the instrument ($2\frac{1}{3}$ inches long) (d) is introduced into the uterine cavity; the lips of the cervix uteri rest upon the flattened ovoid bulb or ball. Fig. 5 shows the lower surface of

(a) Mr. Young, our cutler in Edinburgh, makes them of German silver; sometimes he has electrotyped them for me but this addition is unnecessary.

the bulb or ball, with an orifice in it to allow of the end (a) of a handle (fig. 6), about 8 inches in length, to be fixed in it, for facilitating its introduction into the uterus. This form of pessary generally answers much better for antiversion than for retroversion. Occasionally I have had the bulb made of lead, that it might serve as a counterpoise to hold the os uteri *in situ*. The instrument, however, is imperfect, from the impossibility usually of retaining it in the uterus above a few days, the canal relaxing and dilating, and allowing of its escape. In fact it is exactly the form of bougie which I generally use to dilate the os and canal of the uterus in cases of stricture, in any cases in which I do not employ the knife or hysterotome for that purpose.

Second Form of Pessary, fig. 3,—Has a similar uterine stem and bulb, and in addition a large ovoid disc, $2\frac{5}{8}$ inches in length, $1\frac{1}{4}$ inch broad, and $\frac{1}{2}$ an inch in depth, to retain the instrument *in situ*. The bulb (b) for the cervix uteri to rest upon is fixed in the middle of the disc, and the uterine stem (c) is moveable to a certain extent upon it. This is necessary in consequence of the size of the retaining disc, and the impossibility of introducing the instrument into the uterus and genital passages, with the stem fixed upright, and at right angles to the plane of the disc. The dotted line (d) represents the stem laid down, as is required in the introduction and withdrawal of the instrument. On the lower surface of the instrument (which is not seen in the figure) there is a spring-catch to hold the stem fixed and upright after the instrument is introduced, and capable of being unlocked by the nail when the instrument requires to be again withdrawn. The expanded disc, by pressing on the sides of the vagina, enables the uterine portion of the pessary to keep its situation. In some cases this instrument answers well in retaining the replaced uterus. But occasionally, when the *tendency* to displacement is *great*, this form of pessary is altogether inadequate, and will be moved about by the changes of position which the uterus itself undergoes. The

remaining form which I most frequently employ is free from these disadvantages. The two first forms are, when used, altogether concealed within the genital passages. In this third form a portion of the instrument is placed externally, and another internally.

Third Form of Pessary.—It is made up of two parts:—1. *An internal part* (fig. 2), provided, like the two preceding pessaries, with a stem (f), to pass into the uterine cavity; a bulb or ball (e), for the cervix to rest upon; and, in addition, a vaginal portion, or curvilinear tube (d). 2. *An external part* (fig. 1), consisting of a wire frame-work (a, c, s), to maintain and hold the internal portion *in situ*. This external part, or wire frame, is about five inches long; at its lowest or vaginal portion it is about $\frac{1}{2}$ an inch broad; and towards its upper, or pubic portion, it suddenly swells out to 3 inches in breadth. From the vaginal extremity of this frame projects, at nearly right angles to it, a flat tubular portion (s) $2\frac{1}{2}$ inches long, closed at its further extremity, like the point of a female catheter, and fitted to slide into and fix in the corresponding open tube (a) attached to the bulb of the internal half of the instrument (b).

In the Plate the uterine stem of the instrument is represented as placed in the cavity (h) of the uterus, a section of the organ (f) being outlined around it. In introducing the instrument, the internal portion, fig. 2, is first passed into the uterus and vagina, in the same way as the uterine bougie is passed

(a) I have a patient at present wearing one of these pessaries with a stem three and a half inches long. The retroverted uterus is enlarged and elongated by fibrous tumours in its walls, and one of the ordinary pessaries did not suffice to hold it replaced.

(b) The different parts of the pessaries in figures 1, 2, and 3, are represented as somewhat below their actual size, in order to suit the size of the plate. The bulb or ball is, in general, made an inch and half long, one inch broad, and about half an inch thick. I have sometimes used a larger bulb. When smaller it is apt to produce dilatation of the os uteri, and even to pass partially into it.

[The accompanying plates were kindly furnished by Dr. Simpson.—Ed.]

for the purpose of diagnosis. The retroverted uterus is then replaced by raising it up upon this portion of the instrument, which is turned round for that purpose. After the organ is replaced, the solid vaginal portion attached to the external frame of the pessary is slid into the corresponding vaginal tube (d) of the internal half of the instrument, locking into it on the same principle as the stilet locks into the canula of a curved trocar. Thus the instrument is, as it were, rendered at once completely solid and fixed. In order to have room to lock the two portions together, it is necessary, in general, first to bend back the pubic portion of the external frame-work to a very considerable extent, for the purpose of avoiding its being caught and impeded by the anterior part of the pelvis or pubis. After the locking is accomplished, this pubic portion of the instrument is bent, and moulded upon the anterior portion of the pelvis, so as to fit it as exactly as possible. Formerly I was in the habit of attempting to keep the instrument more permanently fixed, by having elastic tapes fixed posteriorly into the apertures (c), and anteriorly into those still represented in the upper part of the pubic portion of the instrument; and both attached to a band encircling the trunk of the body. This arrangement I always now dispense with as unnecessary. If the pubic portion of the pessary is properly bent in over the pubis, it generally takes a sufficient hold; and if ought more is found necessary, all that is required, in addition, is, that the patient wear a common napkin, or understrap, to pass between the limbs and over the instrument. Latterly I have had the instrument made without the part (c) projecting posteriorly.

It is, perhaps, almost unnecessary to add that, if the instrument is found to press disagreeably on any part, it may be easily bent without removing it, so as to take off that pressure; and it may thus require to be modelled and adjusted again and again in various parts, in order that it may be ultimately worn without annoyance and inconvenience.

When required to be withdrawn, the pubic portion is first

bent back, so as to be clear of the pubis; then the vaginal pieces are unlocked; and, lastly, the internal part is extracted.

The time during which it requires to be worn, in order to effect a cure, varies in different cases from one or two weeks to many months. The recent or chronic character of the case, and particularly the degree of tendency to the recurrence of the retroversion, are our principal guides on this head.

The employment of these uterine pessaries will cure many, but by no means all cases of retroversion of the unimpregnated uterus. And even when not sufficient to cure, they will generally relieve the patient, and palliate her annoyances and sufferings.

If the retroversion were causing no unpleasant symptoms, nor interfering with the functions of the uterus, I have always recommended the avoidance instead of the adoption of local measures and remedies, either mechanical or others. When the reverse was the case, I have employed the means I have mentioned, with the effect of curing many and of relieving others. In the few exceptional cases in which no pessary could be borne, in consequence of the irritable state of the uterus, or where they failed to produce a cure, I have contented myself with reducing this morbid state of the parts by leeching, external counter-irritation, the application of belladonna ointment pessaries, &c., and rest, in the first instance, followed afterwards by the employment of local and general tonic measures. The patient often derives much relief from wearing an abdominal bandage (as those of Hamilton and Hull), with a supporting perinæal pad.

I have not entered into the consideration of the *Causes* of retroversion of the unimpregnated uterus. An explanation of these causes, and, indeed, of uterine displacement in general, is only to be found, I believe, in a complete study of the forms, relations, and functions of the different parts and layers of the

pelvic fascia. In retroversion, those portions of this fascia which unite the back part of the uterus to the rectum and pelvic cavity behind, partially yield and give way. To strengthen this support, and allow of its renovation, retention of the uterus for a length of time in the position and mode I have described, often suffices. The simultaneous use of local injections and baths aid further the same view. But I allude here to the subject principally to observe that we may yet find further means of strengthening the weakened tissues, by indurating and contracting the upper and posterior portion of the vagina, as by the use of caustics, thus taking advantage of that contracting and strengthening power of the new tissue of cicatrices which burned surfaces particularly have. I think I have seen the application of nitric acid and potassa to the posterior lip of the uterus, produce replacement.

BIBLIOGRAPHICAL NOTE.

In the fifth century Ætius treated definitely and at length of retroversion of the unimpregnated uterus (*Tetrabiblos*, sermo iv. cap. 77); Moschion has left us some notices of it (*Spachius' Gynæcia*, p. 24); and in his work on female diseases, Roderick a Castro has some observations upon it (*De Universa Muliebrium Morborum Medicina*, p. 274). In modern medical literature, the first individual case of retroversion of the unimpregnated uterus that was put upon record was reported by Saxtorph, in 1775 (*Collectanea Havnensia*, vol. ii. p. 129). In 1779 Willich described a second case (*Richter's Bibliothek*, vol. v.). In 1786, in a woman who died of pulmonary disease, Peter Frank found the uterus greatly retroverted, and published a notice and drawing of the displacement (*Opuscula Posthuma*, p. 78). In 1787, Jahn noticed its occasional occurrence in the unimpregnated uterus, but considered it "too obscure and too unimportant to deserve the name of a disease" (*Dissertatio de Utero Retroflexo*, in Schlegel's *Sylloge Operum Minorum Præstantiorum ad Artem Obstetricam*, &c., p. 612). A few years subsequently, Schneider (*Richter's Bibliothek*, vol. xi.) and Kirschner (*Stark's Archives*, vol. iv.) published each a case of this affection. In 1817 Schweighauser of Strasbourg pointed out that retroversion of the unimpregnated uterus was far from being rare, and he asserted it to occur much more frequently than in the gravid uterus (*Aufsätze über einige Physiologische und Praktische Gegenstände der Geburtshülfe*). In 1820, Schmitt published at

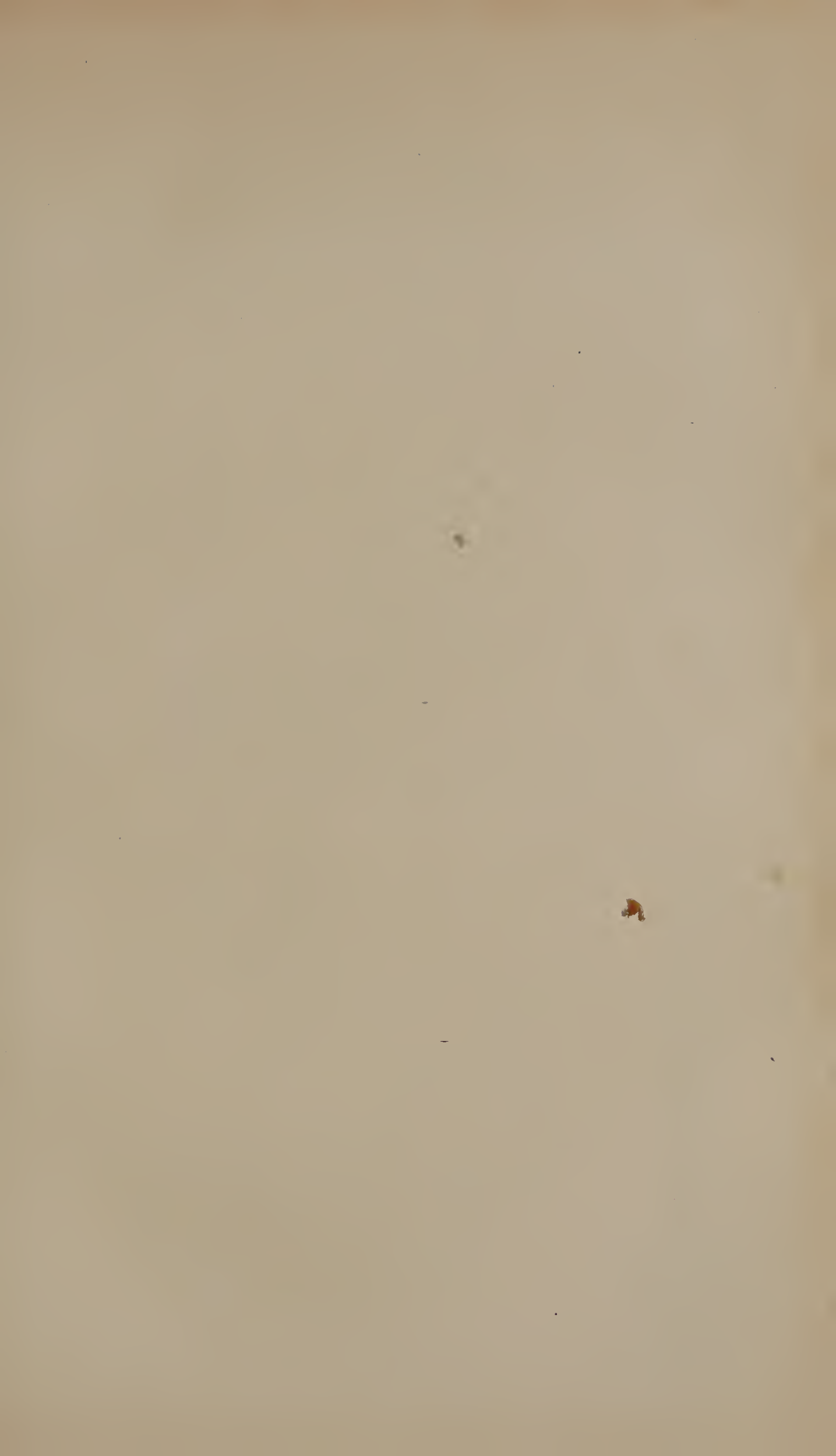


Plate 1. D.^r Simpson on Retroversion.

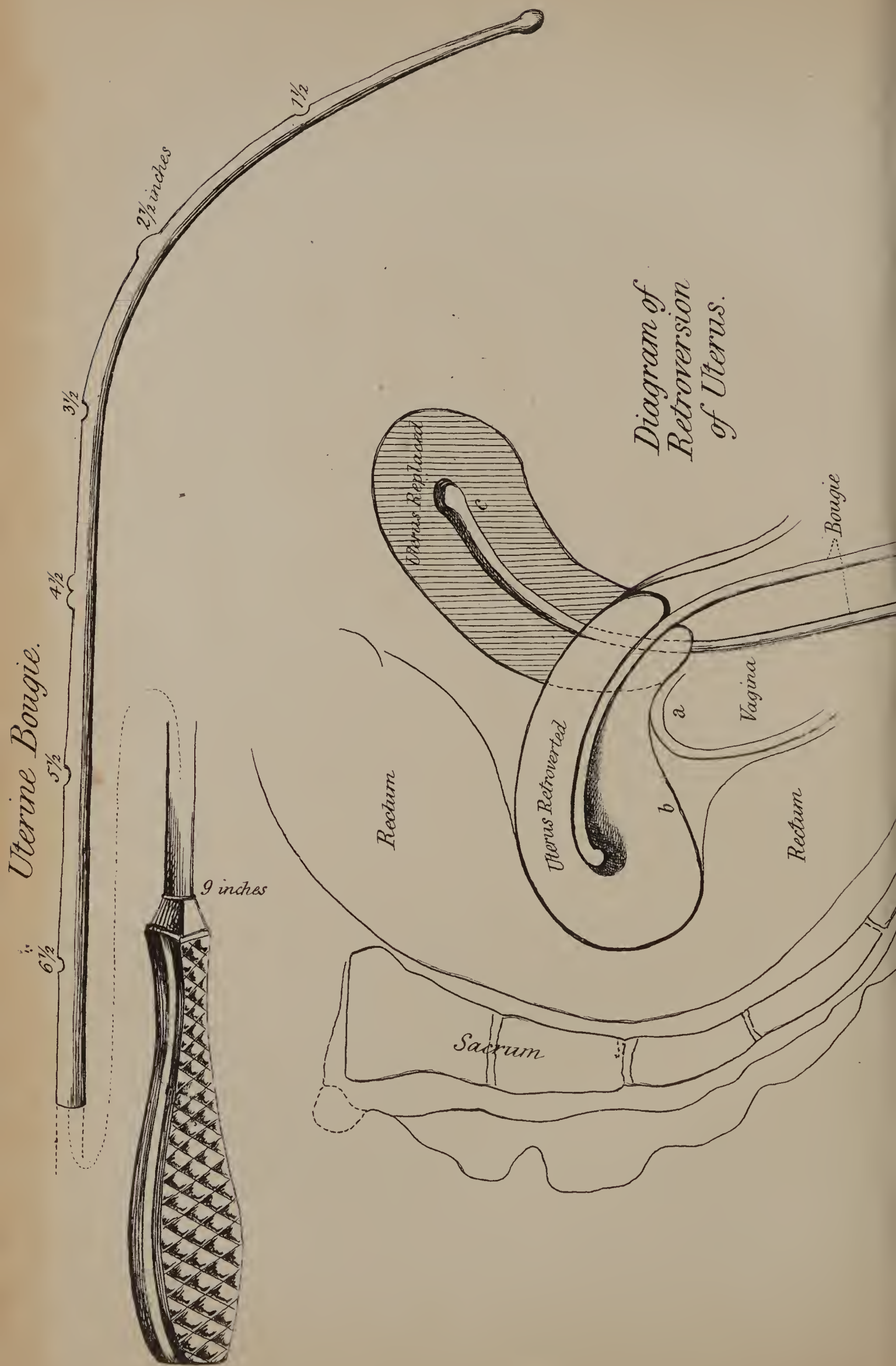
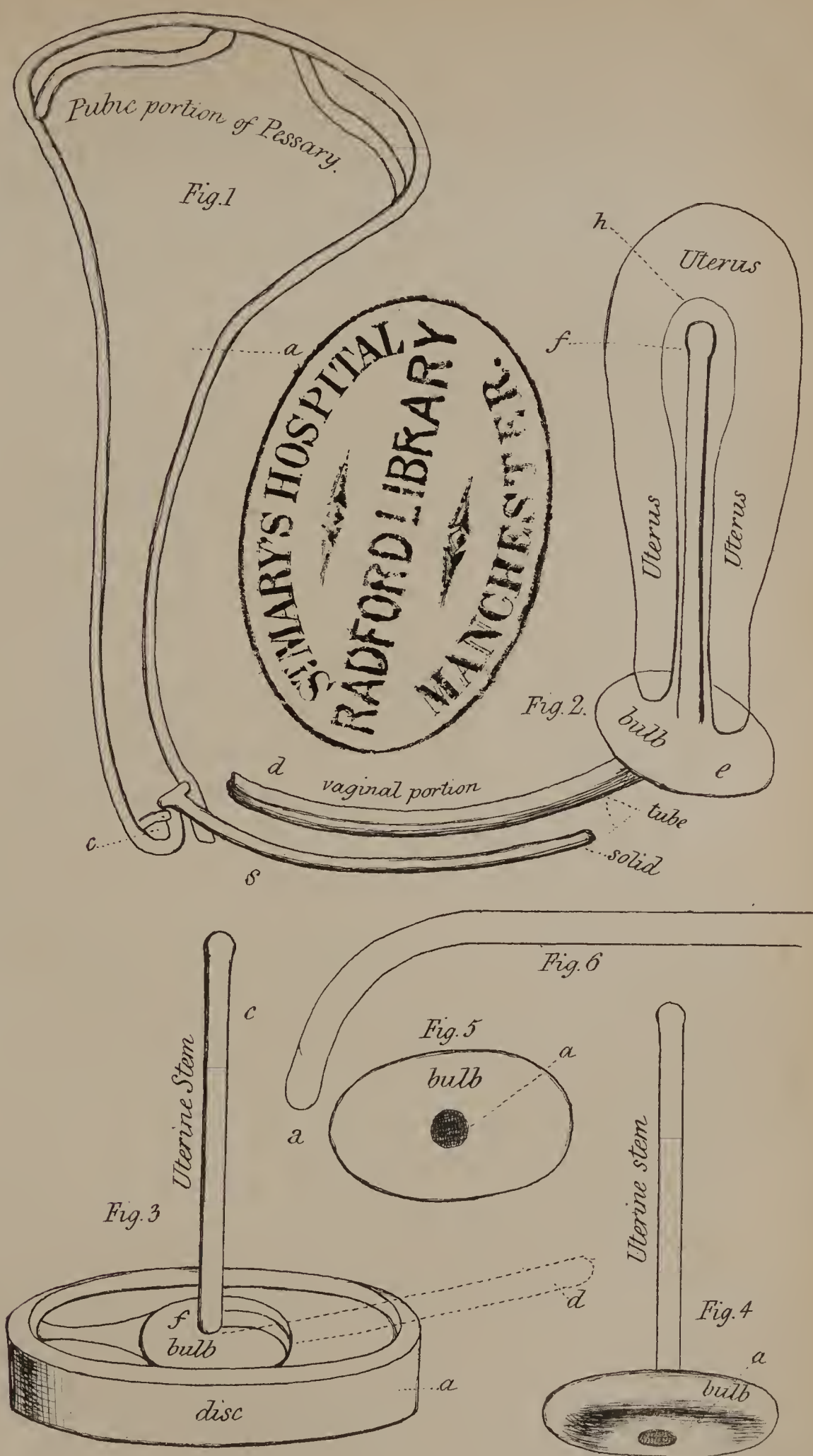


Plate II. Pessaries for Retroversion &c.



Vienna an essay taking the same view (*Über die Zurückbeugung de Gebärmutter bei Nichtschwangeren*, &c.) Subsequently individual cases of retroversion of the unimpregnated uterus, or more general remarks regarding it, have been published by D'Outrepoint (*Zeitschrift für Geburtskunde*, 1827), Denman (*Introduction to the Practice of Midwifery*, p. 138), Cooper (*Anatomy and Surgical Treatment of Abdominal Hernia*, part ii. p. 59, 1827), Robertson (*Edinburgh Medical and Surgical Journal*, 1822, vol. xviii. p. 520), Velpeau (*Traite de l'Art des Accouchemens*, vol. ii. p. 622), Bazin de Basseneville (*Memoire sur la Retroversion de l'Uterus*, 1837), Moreau (*Traité Pratique des Accouchemens*, vol. i. 1838), &c., &c. I have referred in a preceding page to the first observations which I published on the matter, in the Abstract of the Proceedings of the Medico-Chirurgical Society of Edinburgh. I shall extract these remarks from the Monthly Journal of Medical Science for July, 1843, p. 660: "As one of the most important of all these applications of the uterine bougie, Dr. Simpson demonstrated that, by showing the *direction* of the uterine cavity, and hence of the uterus itself, and by its enabling us, when it is introduced, to change at will the position of the organ, it afforded a simple means of detecting those displacements of the unimpregnated uterus known by the names of retroversion and retroflexion, antiversion and antifixion,—states that Dr. Simpson further showed were *very common*, and which, from the want of proper means of diagnosis, had been almost constantly mistaken for fibrous, carcinomatous, and other tumours situated between the uterus and rectum, or between the uterus and bladder. In cases of retroflexion and antifixion of the unimpregnated uterus, the organ can with facility be temporarily restored to its normal position and relations, by turning the uterine bougie, when used as a means of diagnosis. Dr. Simpson proposed to maintain and fix the bougie in the uterine cavity for a length of time as a means of cure. He laid before the Society a number of utero-vaginal pessaries, which had been used by him for this purpose. They were constructed of nickel and silver wire, and had each attached to them a part which passed up to the fundus uteri. Some of them had been worn for weeks and months in the uterine cavity, and had produced little or no irritation." In 1846, Dr. Rigby published some excellent and accurate observations on the disease (*Medical Times*, p. 292, &c.); and more lately Dr. Protheroe Smith has written on the subject (*Obstetric Record*, p. 35, &c.); see also Mr. Hensley (*Provincial Medical and Surgical Journal* for January, 1848); and Dr. Beatty (*Dublin Journal* for November, 1847); &c.

ART. XIII.—*Observations on the Pathology and Treatment of Gonorrhœal Discharges in the Female.* By JOHN C. EGAN, M. D., M. R. I. A., F. R. C. S. I., lately one of the Surgeons to the Westmoreland Lock Hospital.

[Read before the Surgical Society of Ireland, March 18, 1848.]

SINCE the time of Hunter to the present day, venereal diseases, in all their varied forms, local and constitutional, have received more than an ordinary share of attention from well educated practitioners of every country; and, however conflicting the opinions as regards the history and pathology of these affections, or however different the treatment pursued in the choice and application of remedial agents, it must be acknowledged that extensive opportunities of investigation and considerable research have been brought to bear, by the majority of contributors, to this branch of special pathology.

The practice of inoculation, in assisting the diagnosis and treatment of this class of diseases, has afforded us ample means of distinguishing between two affections previously considered by many as identical; and the discovery of urethral chancres, while it explains an apparent anomaly, has tended, in no insignificant degree, to pave the way to a more scientific and certain mode of cure.

But if we examine the records of syphilitic surgery, we will find that the observations and experiments of British authors have, with the exception of a few, whose experience had been acquired in continental institutions, been exclusively confined to the male sex; while the disease, as it exhibits itself in the female, is passed over in so loose and desultory a manner as to lead the reader to imagine that there is no appreciable difference in the symptoms, and that the line of treatment recommended in the one sex is to be strictly adhered to in the other. That this, as a general rule, will hold good, must be obvious to all; but that it is to be received as an universal law,

to which no exception can be added, would be, indeed, to argue from false and inconclusive premises, and would betray an amount of ignorance inconsistent with the education of any practitioner in surgery at present.

It is true, as has long since been stated by Mr. Hunter's commentator, Dr. Adams, that chancres are the same in the female as the male,—that the same precise degree of induration and excavation is attendant on the true syphilitic ulcer in the one sex as the other,—and that all the varieties of venereal ulceration in the male and female bear a close similitude to each other, and are alike amenable to the test of inoculation. It is equally true that all the forms of eruption, commonly called secondary symptoms, consequent on primary infection, together with the modifications of sore throat, are identical in both sexes, and that when the disease attacks the osseous system it admits of no distinct classification. So far we have an unity of symptoms, and a corresponding sameness of treatment necessary. If, however, we prosecute our inquiry still further, and examine other forms of disease consequent on impure sexual intercourse, of far greater importance, because of much greater frequency at the present day, we will discover that the same analogy that we might, *à priori*, expect to meet, does not now hold good, and that our opinion as to the structures engaged, and the remedies to be employed, must undergo a decided change, if we wish to treat this other form of disease on sound and scientific principles, and if we would desire to be successful in our practice. I allude to gonorrhœal discharges, the pathology and treatment of which, in the female, will form the subject of this communication. Did space permit, it might not be considered as altogether uninteresting or uninteresting to trace the history of gonorrhœa, and to demonstrate, which I conceive can be easily done, from historic evidence, both sacred and profane, its existence in the earliest and most remote ages of the world. As such an inquiry, however, would, if carefully and accurately conducted, demand more space than is gene-

rally allotted to papers such as this, I pass on to the consideration of topics of more practical utility.

If we examine, by way of contrast, this affection as it presents in the male, we will be able to ascribe it to inflammation, of a more or less acute nature, of the mucous membrane of the urethra, accompanied by the secretion of muco-purulent matter, generally attended with pain and irritation in voiding the urine, and with involuntary erections of the penis. This inflammation is owing to the anatomical arrangement of the mucous membrane in this particular situation, most commonly limited to the fossa navicularis and neighbourhood of the bulb; contrary, however, to the opinion of Hunter, it sometimes engages the whole extent of the mucous lining of the urethra, constituting the gonorrhœa virulenta of some authors,—a term restricted by others to the disease when attended with chancres in the urethra.

Insufficient opportunity, together with the force of prejudice, have hitherto operated against the employment of the speculum vaginæ on any very extensive scale in this country; and we are consequently obliged to refer to results furnished by continental hospitals, in order to guide us in arriving at any conclusion as regards the pathology of vaginal discharges. How far these results have been attested, and to what extent they may be relied upon in leading us to any correct knowledge of the principal cause of the disease, as it presents itself in this country, we shall now proceed to inquire.

Chancres of the cervix uteri are of such rare occurrence as seldom to form the cause of vaginal discharges, or to simulate gonorrhœa. Thus in his treatise on Venereal Diseases, M. Ricord only details the history of one such case; and in his table of inoculations but twelve instances are recorded as coming under his notice in the venereal hospital from 1831 to 1836.

M. Gibert, for many years physician to the Lourcine, met with but three examples; M. Cullerier, during a long attend-

ance on the Paris venereal hospital, observed but three; Mr. Bennett, for seven years connected with the Paris hospital, witnessed only two. MM. Emery and Duparcque, whose practice in uterine diseases has been by no means inconsiderable, look upon this form of disease as extremely uncommon; and I may add, that during a period of upwards of four years, which I had been attached to the Lock Hospital in this city, I did not see a single example of the Hunterian chancre on the cervix uteri. But although this specific form of ulceration is seldom encountered by those who enjoy the most extensive opportunities of investigation, yet there is a species of ulceration met with and described by writers of the French school, as exceedingly common in females affected with vaginal discharges, and which they denominate "granular erosion." "This ulceration," says M. Gibert, "always rather superficial, generally has a rounded form, and is more or less plainly limited; it occupies sometimes the superior lips, sometimes the inferior, and sometimes the two, and sometimes it even appears to penetrate into the cavity of the cervix uteri: its surface is red and granular, and contrasts notably with the smooth and polished surface of the normal neck, and it bleeds easily. Generally speaking, a veil of viscous, semi-transparent mucus, which flows from the orifice of the neck of the uterus, covers the granular erosion." Out of 500 cases which he examined, M. Gibert discovered the existence of this form of ulceration in 144, some of whom, however, were exempt from any vaginal discharge. M. Ricord states that this condition of the cervix is met with in nineteen out of twenty cases of gonorrhœal discharge, and that whenever these peculiar erosions are discovered, there can be no doubt of the gonorrhœal origin of the disease; and thus relies almost exclusively on this symptom in forming a differential diagnosis between this disease and leucorrhœa. Mr. Bennett, to whom I have already alluded, is of opinion, that this peculiar lesion is not only exceedingly

common in women labouring under blennorrhagic discharges, but is also frequently to be found in females suffering from the secondary forms of syphilis. "In the spring and summer of 1843," he writes, "whilst in charge at St. Louis of a female skin ward of seventy-five beds, in which there were always a great number of syphilitical skin-affections, I carefully examined with the speculum all that were so affected, in order to ascertain what was the state of the internal genital organs. I was led to adopt this course by finding, *on inquiry*, that several of these patients who presented no syphilitical disease of the external genital organs, except trifling leucorrhœa, were labouring under the symptoms I have enumerated as indicating slight inflammation and ulceration of the cervix uteri. On examining these latter patients I found the cervix ulcerated, and slightly indurated, and it then occurred to me that others might be similarly affected, although they had not directed my attention to any symptoms of uterine disease. To my great surprise I found that three out of four, perhaps more, also presented ulcerations of the cervix. Most of these patients were young women, who had either never borne children, or had been confined several years previously, and were under treatment for syphilitical psoriasis, lichen, rupia, &c." And further on he adds: "The prevalence of ulceration in women labouring under the various forms of syphilis, without vaginitis, is certainly singular, but I am inclined to attribute it to the abandoned life which they nearly all lead, or have led."

Mr. Acton, formerly externe at the female venereal hospital, Paris, observes: "We have found the mucous membrane, in its whole extent, or in isolated points, of a red colour, accompanied by swelling, heat, and pain, unattended by any secretion, thus presenting an erysipelatous state, which may last a short time, and then disappear. We have seen other cases, which presented the first stage of catarrhal inflammation, give rise to a morbid secretion, the colour and consistence of

which are very variable: this difference seems to have no reference to the cause which has produced it. In examining the vulva, vagina, or neck of the uterus, we have observed the mucous membrane covered with papulæ, or follicles, more or less developed, constituting a papular vaginitis, or utero-vaginitis, a *psorélytrie*, as M. Ricord terms it, sometimes assuming the form of small spots, in size not larger than a pin's head, and isolated, or more or less confluent. In other cases these papulæ look like granulations deprived of their epithelium; lastly, they may assume a fungous appearance of the form of vegetations. On the same portions of the mucous membrane we have distinctly seen patches, more or less numerous, and varying in extent, which have a striking analogy with the suppurating surface of the skin, on which a blister has been applied." "M. Ricord," he adds, "has likewise witnessed a case in which an eruption of herpes phlyctenoides was present on the neck of the uterus and the posterior part of the vagina; lastly, we may find ulcerations of every description seated on the whole or any part of the surface of the genito-urinary mucous membrane."

Illustrative of the foregoing description, Mr. Acton has furnished a fasciculus of plates, exhibiting the different appearances presented on examination of the vagina and neck of the uterus. Inflammation of the vulva and vagina has been found to exist solely, or conjointly with a granular condition of the cervix uteri; and the urethra has been stated by M. Ricord to be affected in eight out of every twelve cases of gonorrhœa.

Having thus briefly reviewed the labours, and recorded the opinions, of those whose investigations had been carried on in continental hospitals, I shall now proceed to the description of those cases which came under my immediate inspection in our Lock Hospital. The prevalence of gonorrhœa during the last few years in this city afforded me an opportunity of examining, by means of the speculum, a vast number of females affected

with vaginal discharges, many of whom were at the same time labouring under some of the secondary or tertiary forms of syphilis, in most instances the result of previous infection.

As no British hospital has, as far as I am aware, contributed any information on the pathology or treatment of gonorrhœa in the female, the following details, which I have drawn up in a statistical form, and which differ in some important particulars from those furnished by the majority of writers already cited, will not, I trust, prove altogether devoid of interest to the profession. The particulars of the cases, and the appearances presented, were carefully and accurately noted, in the presence of the patients, immediately after examination; and in no instance have I trusted to memory for a description of the appearances about to be detailed.

I possess a tabulated statistical summary of the particulars of 112 cases(*a*), from which it will at once be evident that gonorrhœa in the female is not confined to the vagina, as is generally supposed, but extends itself to the uterus, always, as far as my observation goes, involving the neck of that organ, and very frequently penetrating the cavity of the uterus itself, and thus, by a vitiated secretion of muco-purulent matter from the cervix uteri, or from the internal lining membrane of the uterus, the disease may be kept up for an indefinite period, while the vagina may be perfectly healthy. Such was the case in fourteen instances detailed, in which no disease of the vulva or nymphæ was apparent, while a copious discharge was the result of a diseased state of the uterus.

In ninety-eight cases the vagina presented a more or less inflamed appearance.

In thirty-eight, granular erosions were apparent on the cervix uteri, with attendant induration in six.

In fifty-seven the os and cervix exhibited an erythematous condition, generally accompanied with engorgement and slight induration.

(*a*) These tables were exhibited at the Surgical Society.

In six there was hypertrophy of the anterior lip of the os uteri.

In six there was enlargement of the posterior lip. In thirteen both lips were equally engaged.

In ninety-seven the uterus participated in the disease, which was evinced by a muco-purulent discharge from the os.

The duration of the disease previous to examination was as follows:

CASES.	WEEKS.	CASES.	MONTHS.	CASES.	YEARS.
1	1	11	1	11	1
11	2	18	2	8	2
8	3	7	3	1	3
3	5	4	4	1	4
1	6	4	5	1	7
1	10	8	6	1	8
1	11	2	8		
		3	9		
		4	18		

In describing the form of vaginal inflammation met with, I have termed it subacute, but this, it will be remembered, was the condition found at the time when examination by means of the speculum was allowable, as in every instance of recent infection this state was preceded by inflammatory symptoms of an acute nature, where the introduction of the speculum was, for obvious reasons, contra-indicated. The mucous membrane of the vagina, especially at its superior part, was occasionally the seat of abrasions; this appearance was observable sometimes in isolated patches, and sometimes as one continuous superficial breach of surface; in a few of these the skin was either affected with a papular eruption at the time of examination, or subsequently became so: whether this secondary form of disease was owing to the action of the gonorrhœal secretion, or consequent on previous infection, I do not undertake to decide(*a*).

(*a*) "Under no circumstances can it (gonorrhœa) produce chancre; but as an irritating matter, like that of coryza for instance, it may excoriate the

The interior of the vagina has likewise, in a few cases, presented that papular or follicular condition, described by M. Ricord, which will be seen by reference to the table.

It will further be observed that granular erosions of the neck of the uterus were only discernible in about one-third of the patients subjected to examination, a statement at variance with the results of continental writers, more especially with those of M. Ricord, who affirms that this peculiar lesion of the cervix uteri is to be found in nineteen out of twenty cases of gonorrhœa, thus enabling him to decide between the infectious and the more common forms of vaginal discharges to which females are liable. I think, however, from the absence of this symptom of disease in women, where no doubt can exist as to the venereal origin of the affection, and, on the other hand, from its occasional presence in females labouring under leucorrhœa(a), whose rank of life and virtuous habits place them beyond all suspicion of infection, we would not be justified, in this country at least, in pronouncing, either in a medico-legal point of view or otherwise, a positive opinion as to the nature of the disease from any evidence derived from this source; the only testimony, therefore, on which we can rely with any degree of certainty, must be grounded on the previous history of the case, which, for obvious reasons, cannot be at all times implicitly depended upon.

The most common appearance I have met with is that which I have described as an erythematous condition of the cervix, generally accompanied with engorgement and slight induration; this was in many cases concealed from view by the intervention of a thin, semitransparent stratum of muco-purulent matter, with which the inflamed cervix was slightly coated. This condition was almost invariably accompanied with a dis-

skin, with which it remains sometimes in contact, but it never produces a specific ulcer."—*Ricord*, p. 59.

(a) See a paper on affections of the uterus, by Dr. Ivory Kennedy, in the *Dublin Quarterly Journal*, for February, 1847.

charge, from the interior of the uterus, of a very tenacious and almost purulent matter, forming in this respect a marked difference between this secretion and that furnished by the vagina and exterior of the uterus. A string of this ropy material was generally found suspended from the os tinæ, which was with considerable difficulty disengaged and removed with the assistance of a sponge. This, together with menstrual irregularity, will, I doubt not, in a great measure, account for the almost universal sterility common to this class of females. The same disposition has been observed by Messrs. Gendrin, Jobert, and Emery, in young married women labouring under leucorrhœa(*a*).

The duration of the disease will appear, perhaps, to some unusually protracted, extending, in one instance, over a period of eight years: it must, however, be borne in mind, that the individuals of whom this Essay treats, were, for the most part, from their dissolute habits, continually the subjects of renewed infection, their sole subsistence being derived from a constant life of prostitution. But such was not the case with all. Some there were, who, determined to abandon a life of misery and profligacy, but against whom—destined to suffer “the orphanage that springs not from the grave”—were closed for ever the doors of that humble, but once virtuous and happy home, whence they had been allured by the snares of their heartless seducer, took refuge within the walls of one of those quiet retreats which afford an asylum to the unprotected: in some of those, relapses after apparent cure, brought on by bodily exertion, as washing, &c., were by no means unfrequent. This form of disease, the consecutive gonorrhœa of Hecker, appeared to be the result of a general relaxation of constitution, in which a tonic line of treatment was obviously indicated. In these latter cases the interior of the uterus was always affected(*b*).

(*a*) See Bennett on Inflammation, &c., of the Neck of the Uterus, p. 21.

(*b*) Attached to the Lock Hospital is an asylum for a limited number of

The symptoms present on the invasion of the disease were generally of an inflammatory nature, swelling of one or both labiæ, pain and difficulty in micturition, with a sensation of heat and weight in the lower part of the pelvis; these generally subsided in a few days by rest in the recumbent posture, a copious use of demulcent drinks, with the occasional aid of fomentations; a spare form of dietary being at the same time strictly enjoined. General depletion was seldom resorted to, and local blood-letting was always contra-indicated, from the disposition which leech-bites, under those circumstances, assume to degenerate into foul and unmanageable ulcers. Nauseating doses of tartar emetic were found to answer fully every indication required in this stage of the disease. Unlike the same affection in the male, we possess no remedy which can exert any specific influence over the disease when taken internally. The balsams, cubebs, &c., which are found so efficacious in arresting the discharge in the male, may be looked upon as almost inert in the female; our attention must, therefore, be principally directed to local applications, which it will be necessary to alternate one with the other during the course of treatment. Solutions of chloride of lime, and injections of alum, are extremely useful in cleansing the parts and astringing the vagina, which is usually in a relaxed condition; and in a more advanced stage, a strong solution of nitrate of silver injected into the vagina will be found to act beneficially.

The most successful plan of treatment, however, is that recommended by M. Ricord, which consists in the application of the solid nitrate of silver to the sides of the vagina and neck of the uterus; the immediate effect of this application will be to increase the discharge, but it will, after a few repetitions,

females, who, when convalescent, frequently avail themselves of the advantages this institution offers; and in immediate connexion with it, but on a larger scale, is another of a similar nature. Both these penitentiaries have been established by the indefatigable and philanthropic exertions of P. Æ. Singer, Esq., the senior governor of the hospital.

either diminish it considerably, or arrest it altogether. I have likewise been in the habit of applying to the same diseased structures, and with like beneficial results, the acid nitrate of mercury; this caustic I have found to succeed when the nitrate of silver had failed in effecting a cure. I may here, in passing, observe, that in many cases of inveterate amenorrhœa, which had resisted every form of constitutional treatment, the direct application of caustics to the cervix uteri was followed by a re-establishment of the healthy uterine secretion, at first scanty, but after a short time normal, both as to quality and quantity. I was not aware that this fact had been noted by any previous writer, until looking into M. Ricord's work within the last few days, I find that the same circumstance is recorded as the result of his experience(*a*). The separation of the walls of the vagina, by means of a plug of lint, will assist materially in the cure of the disease. Counter-irritation, through the medium of blisters to the sacrum, and the actual cautery, as first recommended by Dr. Corrigan in sciatica, and successfully employed in some cases of leucorrhœa, will prove valuable adjuvants in protracted cases. From the frequent participation of the uterus in the disease, injections of the nitrates of mercury and silver have been respectively recommended to be thrown into the cavity of that organ: this is a mode of treatment, however, which, I confess, timidity prevented me resorting to, I shall, therefore, transcribe a passage from M. Ricord's work, bearing upon this particular part of the subject: "Wearied," he says, "with the protracted continuance of certain uterine discharges, I made some attempt to cure them. I first used an injection of one part of nitrate of mercury and eight of water. Some patients had very violent hysterical attacks; one of them had a cerebral congestion, which caused a momentary apprehension of apoplexy. These symptoms, which all arose a few minutes after the injections, yielded

(*a*) Ricord, p. 328.

very rapidly to antispasmodics; and in the case with cerebral congestion, on a quantity of blood being taken from the arm. Although the affections submitted to this treatment were either cured or partially so, I was obliged to reduce the doses, to avoid the serious consequences. I subsequently obtained some cures with one part of nitrate of mercury to twelve of water, without producing the symptoms I before mentioned; but yet the action of these injections was not always unattended with pain, or some nervous reaction of an hysterical character. I then substituted six grains of nitrate of silver to the ounce of water, and found that in some instances a chronic purulent uterine discharge was cured after two or three injections.”(a)

In order to guard against the danger attending the indiscriminate use of injections into the cavity of the uterus, Dr. Evory Kennedy observes: “ We have been in the habit of using injections freely into the uterus for some years without any inconvenience, until we observed a case published in one of the periodicals about nine years ago, in which this operation was reported to have been followed by fatal peritonitis, in consequence of the injected fluid escaping into the abdominal cavity through the Fallopian tube; since then we have adopted this practice less frequently, and with such precautions as to prevent the possibility of any mischief of this kind occurring. By means of a long, graduated glass syringe, a quantity of fluid, not exceeding twenty minims, can be thrown into the cavity of the uterus, and its escape secured in the following manner:—the syringe attached accurately to a small, male, gum-elastic catheter, is fitted into a somewhat shorter catheter or tube, open and well finished at its extremity; the difference in caliber between the catheters being such, that the large catheter admits of the regurgitation of the fluid between it and the smaller. The syringe and inner catheter are first charged with the fluid to the point, leaving the piston so far withdrawn

as to allow merely twenty minims, or half a drachm, in addition to the charging of the tube within the cylinder of the syringe, as proved by the graduated mark on its side. The patient is now placed in the recumbent posture, the tube introduced, the inner catheter (graduated also, so as to indicate when it projects beyond the other) is passed through, and the fluid slowly projected into the cavity of the uterus. After resting there as long as we wish, the piston may be drawn up, so as to suck any remaining portion of the fluid, and a little water thrown in, in the same manner, if required, or the larger tube allowed to remain, so as to secure the escape of any remaining fluid."(*a*).

As a substitute for injections into the uterus, I was frequently in the habit of introducing through the os a finely pointed pencil of nitrate of silver, and allowing it to remain in contact with the lining membrane of the uterus for a minute or two; this usually caused a momentary sensation of pain, but was attended with no ulterior ill effects. To guard against the danger that might arise from the breaking of the caustic, and it remaining in the cavity of the uterus, Dr. Kennedy suggests the propriety of melting it into a *porte caustique*, in the manner recommended by Mr. Wilde in the treatment of disease of the meatus auditorius and tympanum.

Conjointly with the topical applications described, I have found preparations of steel, more particularly the compound iron mixture, very efficacious in restoring the uterus to its original healthy condition.

(*a*) On Affections of the Uterus, Dublin Quarterly Journal, Feb. 1847.

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

1. *Observations on the Prevention of contagious Diseases, by the effectual Ventilation of the Houses of the lower Classes.* By ROBERT COLLINS, M.D., M. R. D. S., President of the King and Queen's College of Physicians in Ireland, &c. Dublin, Hodges and Smith. 1848. 8vo. Pamphlet, pp. 20.
2. *A supplementary Report on the Results of a special Inquiry into the Practice of Interments in Towns, made at the Request of Her Majesty's principal Secretary of State for the Home Department.* By EDWIN CHADWICK, Esq., Barrister at Law. (Presented to both Houses of Parliament, by Command of Her Majesty.) London, Clowes and Sons. 1843. 8vo. pp. 279.
3. *First and Second Reports of the Commissioners appointed to inquire whether any and what special Means may be requisite for the Improvement of the Health of the Metropolis.* (Presented to both Houses of Parliament, by Command of Her Majesty.) London, Clowes and Sons. 1848. 4to. pp. 35.
4. *Unhealthiness of London, and the Necessity of remedial Measures; being a Lecture delivered at the Western and Eastern Literary and Scientific Institutions, Leicester-square and Hackney-road.* By HECTOR GAVIN, M.D., F. R. C. S. E., &c. London, Churchill. 1847. 8vo. pp. 70.
5. *Sanitary Reform, and Agricultural Improvement; or how to promote Health and Abundance. In three Letters: Letter I. Drainage, Sewerage, Urinaria, and Cloacæ.* By CHARLES F. ELLERMAN, Esq., &c. London, Peirce and Hyde. 1848. 8vo. pp. 70.
6. *Journal of Public Health and Monthly Record of Sanitary Improvement.* Edited by JOHN SUTHERLAND, M. D. London, Renshaw. Number I. 1847. Large 8vo. pp. 30.

THE vast importance of improving the structural arrangements of towns is now so generally acknowledged by all who have

directed their attention to the subject, that we need not apologize for devoting some of our space to this interesting inquiry; and, for the same reason, we have the less hesitation in fully canvassing the arguments which have been brought forward from various sources in support of the necessity of this improvement. In the commencement of every attempt to ameliorate the evils to which humanity is liable, much allowance should be made for exaggerated statements; and, so as the end sought to be attained is manifestly good, the reasoning employed in its promotion need not be too severely scrutinized. This was especially felt to be the case with regard to the efforts made by some few earnest and energetic advocates for cleanliness, ventilation, and sufficient supply of water to the habitations of the poor; and, up to a late period, the bulk of the medical profession, admiring the philanthropy and energy of the apostles of the sanitary cause, passed over in silence many doctrines to which it could not conscientiously subscribe, and permitted judgment to go by default in cases where the admitted rules of medical evidence were relentlessly violated. This state of things need not, however, any longer continue. The sanitary question is no longer in jeopardy from lukewarmness or malevolence. The influential and enlightened classes of society are fully alive as to its extreme importance to the welfare of the community. The Press aids in the struggle for improvement; and there is now no reason why the most intricate and difficult questions which are involved in the consideration of this subject should not receive the strictest investigation. Vested interests may oppose, ignorant prejudices may retard, but in the ultimate triumph of truth and science we have the most implicit faith.

The first work enumerated in the heading of this review is the substance of an address read by Dr. Collins at the Evening Meeting of the College of Physicians on the 7th of February last, when the Lord Lieutenant honoured the College with his presence. The main object of this pamphlet is to show that all external sanitary improvements are inefficacious unless there be a ready exit for the impure air from within. In the course of his address Dr. Collins remarked upon the great mortality of medical men in the rural districts, and in general in Ireland, from disease contracted in the discharge of their perilous duties, particularly in the last year; and says: "It is abundantly obvious, from the disastrous fatalities to medical men in the rural districts, that it matters not how pure the air external to our dwellings may be, there is not the slightest safety in this, if the vitiated air be not removed from the inte-

rior." At the same time we know that a vast number of medical men contracted fatal fever from attendance upon the sheds and temporary hospitals throughout the country.

We shall now proceed to detail, from the papers before us, the present state of the sanitary question, commenting, as we proceed, on those opinions and recommendations which we consider to be based on erroneous principles, and pointing out the path which we believe to be best calculated to lead to the attainment of public utility.

Nothing can be better proved than that the emanations proceeding from putrefying organic matter are injurious to animal health, and conducive to the production of disease. The greater mortality of an urban than of a rural population demonstrates this fact on a scale of such magnitude as to render unnecessary any minor and merely corroborative evidence for its verification. From a table contained in the Report upon Tables of Deaths in the last Irish Census, we find that in towns where the population is between 2000 and 5000, one person out of 45·9 dies annually; in towns which contain from 5000 to 10,000 inhabitants, the mortality is 1 out of 39·89; in towns of above 10,000 inhabitants, it is 1 out of 37·64; while in the open country it is only 1 out of 74·06: in other words, an individual has twice as great a chance of life in the open country as in a thickly populated town(a). The great majority of the inhabitants of towns are quite ignorant of this excessive mortality;—nay, even the members of the municipality of more than ordinarily enlightened towns are very commonly in a similar predicament. A good opportunity of witnessing this want of information on a matter of such importance was afforded us, some months since, in the comparatively wealthy and flourishing city of Waterford. Professor Aldridge having been requested to deliver a course of lectures in that city, took occasion to offer some remarks on the sanitary condition of the town. As a proof of the influence of defective structural arrangements on the health of the population, he showed from the Census returns that the mortality in the county of Waterford is 1 in 68; whilst that in the city is 1 in 34, or exactly double the former. At this lecture the Mayor was in the chair, and many of the most intelligent of the Corporation and citizens were present. After the lecture several speeches were made; through courtesy, no absolute contradiction was given to the statement of the lecturer, but much astonishment was expressed; all agreed

(a) Census of Ireland for 1841.—Report upon the Tables of Deaths, by William Robert Wilde, Esq. Dublin, August, 1843.

in considering Waterford, until the late pestilence, to have been a very healthy city; and it was quite plain that the majority felt doubts as to the correctness of the figures which had been brought forward. Now until the majority of the inhabitants of towns become thoroughly educated in the consequences of defective structural arrangements, it is useless to hope for a true sanitary reform. Every proper means should be adopted for the purpose of extending this education, and we are therefore well pleased to see the Journal of Public Health, whose title is amongst the works enumerated at the head of this article.

It being admitted to be a fact that the mortality of towns is much greater than that of the open country, there can be no question that the principal cause of this difference is the accumulation in towns of fermenting organic, and particularly animal matters. All the means proposed, and experimentally approved, for rendering more salubrious urban localities, act by removing or diluting the poisonous emanations which are engendered by putrefaction. An abundant supply of water, good scavenging and sewerage, free ventilation, all operate in one or other of these ways. Certain occupations may tend to increase the mortality of towns; one locality may be naturally more unhealthy than another; the habits of life may differ;—but can any one or all of these causes suffice to explain why it is that in the town of Galway, with only a population of 17,000, 1 out of every 27 die yearly; while in the city of Cork, with 80,000, the mortality is but 1 in 40? The only way to account for the difference is by the filthy and neglected condition of the former town; or that while the average age at which death occurs is 9 in Belfast, 8 in Limerick, and even as low as 6 in Drogheda, it is 28 in the rural districts of Kilkenny, and 30 in the County of Wexford.

This argument is in itself so strong that we require no other. We think that the advocates for sanitary reform weaken their cause by having recourse to doubtful or speculative opinions, when they have such facts as these to rely on. We do not hesitate to say that the greater number of medical men who have taken part in the movement for sanitary improvement, have tended to bring the subject into disrepute with the well-informed of their profession, by the manner in which they have dogmatized on *questiones vexatas*, and the one-sided earnestness they have displayed, rather as advocates than impartial inquirers. Thus Dr. Southwood Smith says:

“It is equally well known that, when the air is infected by par-

ticles of decomposing vegetable and animal matter, fevers are produced, of various types and different degrees of intensity."

Now is there a question in the whole history of medicine more completely *sub judice* than this very one, so summarily disposed of by Dr. Smith? Again, Dr. Lyon Playfair states:

"To take the simplest case: a piece of decayed wood, a decaying orange, or a piece of tainted flesh, is capable of causing similar decay or putrefaction in another piece of wood, orange, or flesh. In a similar manner the decaying gases evolved from sewers occasion the putrescence of meat or of vegetables hung in the vicinity of the place from which they escape. But this communication of putrefaction is not confined to dead matter. When tainted meat or putrescent blood-puddings are taken as food, their state of putrefaction is frequently communicated to the bodies of the persons who have used them as food. A disease analogous to the rot ensues, and generally terminates fatally. The decay or putrefaction communicated by putrid gases or by decaying matters does not always assume one form, but varies according to the organs to which their peculiar state is imparted. If communicated to the blood it might possibly happen that fever may arise; if to the intestines, dysentery or diarrhoea might result; and I think it might even be a question worthy of consideration, whether consumption may not arise from such exposure?"

In the foregoing extract Dr. Playfair employs an ingenious speculation of Liebig's as to the analogy of fermentation to the phenomena of malaria and infection, as if it was a demonstrated and accepted truth. Now the fact is, that, whatever our individual opinions may be, this hypothesis of Liebig's is regarded by the majority of fever physicians as wild and untenable. Dr. Copland, in his evidence before a Committee of the House of Commons, says:

"About two years ago I was called, in the course of my profession, to see a gentleman advanced in life, well known to many members in this house, and intimately known to the Speaker. This gentleman one Sunday went into a dissenting chapel, where the principal part of the hearers, as they died, were buried in the ground or vaults underneath. I was called to him on Tuesday evening, and I found him labouring under symptoms of malignant fever. Either on that visit or the visit immediately following, on questioning him on the circumstances which could have given rise to this very malignant form of fever,—for it was then so malignant that its fatal issue was evident,—he said that he had gone on the Sunday before (this being on the Tuesday afternoon) to this dissenting chapel, and on going up the steps to the chapel he felt a rush of foul air issuing from the grated openings existing on each side of the steps: the

effect upon him was instantaneous; it produced a feeling of sinking, with nausea, and so great debility, that he scarcely could get into the chapel. He remained a short time, and, finding this feeling increase, he went out, went home, was obliged to go to bed, and there he remained. When I saw him he had, up to the time of my ascertaining the origin of his complaint, slept with his wife: he died eight days afterwards. His wife caught the disease, and died in eight days also, having experienced the same symptoms."

Now we confess that we look on this story, under the circumstances in which it was told, as anything but conclusive. If it be assumed as proved that putrefying exhalations can instantly give rise to specific disease in an organism exposed to their action, such an anecdote might be related to a medical class, or in a medical essay, as an illustration of the deadliness of their effects: even so, exception might be taken to it on the ground that the patient might have had the fever on him at the time that he perceived the unpleasant odour, the senses being commonly, under such circumstances, unusually acute, and that we cannot take the belief of a patient as a sufficient evidence of the cause of his disease; or it might be that there was no truth in the story, it being, perhaps, the raving of delirium; for we lately knew an instance where an incoherency of speech was the first symptom of incipient fever. But to bring such a story as this before a Committee of the House of Commons, as a *proof* of the injurious influence of putrefaction within cities, appears to us to be most illogical and absurd. The quotations which we have taken from the evidence of men who have acquired some reputation in the profession may be taken as examples, somewhat above the average, of the kind of support which medical men in general have given to the cause of sanitary reform. We wish it had been otherwise, but we feel ourselves justified in the statement, that such support is rather calculated to injure than serve the principles which it advocates.

We have already stated the grounds upon which we are led to believe that accumulated and decomposing organic matter is the cause of the comparative unhealthiness and increased mortality of towns. It comes to be a question of importance, what are the constituents of putrefactive effluvia that thus prove injurious? The gaseous products of animal effluvia are chiefly: watery vapour, carbonic acid, ammonia, sulphuretted hydrogen, phosphuretted hydrogen, carburetted hydrogen, organic matter in a gaseous and decomposing state.

When we come to examine these different principles, we cannot ascribe the effects produced by the vicinity of animal

matter in a state of putrefaction, to any of the inorganic products above enumerated. What are these effects? We will tell them, as far as our experience enables us. Almost all medical students, when they commence to dissect, and have overcome the repugnance occasioned by the disgusting nature of their employment, at first are sensible of a remarkable increase of appetite, and subsequently become attacked with diarrhœa. Again, at autopsies, we have frequently had to plunge the scalpel into the abdominal cavity of a body much distended from the gaseous results of putrefaction, and it has sometimes happened that we or others have felt nausea, faintness, weakness, and been subsequently tormented with headach. We cannot say how much of these effects were due to disgust at the nature of our occupation,—how much to the injurious influence of the gases disengaged; and we do think that the mere sensation of an extremely unpleasant odour would be sufficient to account for those symptoms, without the supposition of any poisonous action. Lastly, we have satisfied ourselves that the greater number of hospital cases come from the filthiest localities. This was remarkably the case during the investigations in Waterford already referred to. In St. John's-street, in that city, every second hall leads into a confined close behind the houses, in each of which are a number of miserable tenements; and the area of nearly every close was at the time of our visit loaded with every kind of unutterable nastiness. Our conductor, a very intelligent clergyman, who was a member of the Relief Committee, told us that a majority of sick cases of all kinds were sent out of these closes to hospital. We may remark that great efforts were made on the part of the authorities to keep these closes clean, but were frustrated by the want of proper structural arrangements.

Now comes the question, does neglect of cleanliness lead to any specific disease, or does it increase the general sum of disease, without reference to any one in particular? We are led to believe that the latter is the truth. We have heard the last year of a vast number of medical men dying of fever; yet the number that were cut off by this disease would give a very false idea of the real mortality. In ordinary years between 2 and 3 per cent. of the medical population of Ireland die; this year, when fever raged like a plague, between 6 and 7 per cent. of the medical men of Ireland have died, according to Drs. Cusack's and Stokes's researches; and yet, in both cases, the deaths by fever have been between 44 and 45 per cent. of

the entire number of deaths. If there has been in 1847 an unusual number of deaths from fever, so there has been a proportionately unusual number of deaths from all other causes. Peculiarly exposed to contagion, medical men are nearly twice as liable to fever as all other classes put together; but that which rendered them more susceptible of fever in the past year also rendered them more susceptible of all other forms of disease. Over-worked, ill-paid, and treated with contumely by those who ought to have acted as their friends, is it any wonder that they should have been predisposed to the reception of any injurious influence which might be brought to bear on them? Now just in the same way that the causes to which we have alluded have predisposed medical men, not to this or that, but to all varieties of disease, do we conceive that want of cleanliness, and the consequent diffusion, through the atmosphere of cities, of noxious and putrescent gases, induce a predisposition to incur any of those vital aberrations which conduct to mortality. Here, then, we have three groups of effects produced by exposure to the emanations of putrefying animal matter: firstly, symptoms of gastro-intestinal irritation; secondly, symptoms indicating a nervous shock; and thirdly, a condition of general ill-health predisposing to the contraction of disease.

Now to which of the constituents of the gaseous emanations of putrefaction are we to attribute the symptoms to which they give rise. Not, assuredly, to the ammonia, carburetted hydrogen, or carbonic acid; for the known effects of these gases on the system are very different from those produced by the vicinity of animal putrefaction. Perhaps the ammonia may have something to do with the enteric irritation to which dissecting students are prone; but if sufficiently concentrated for that purpose, we should expect it to cause ophthalmia and bronchitis, diseases to which we do not know that medical students are peculiarly liable. Carbonic acid contained in an atmosphere in considerable excess is capable of producing syncope; in still greater quantity, asphyxia; but in the proportion in which it is evolved during putrefaction, we are not aware of its causing any physiological phenomena. Malsters, brewers, and tanners breathe an atmosphere containing a much greater quantity of carbonic acid than what is likely to be present in any air contaminated by the results of putrefaction, and we are not aware of their suffering from the symptoms which originate from putrid emanations. Colliers breathe an air surcharged with the carburets of hydrogen, yet the diseases to which they are subject cannot be ascribed to this cause. It is, therefore, to

the sulphuretted hydrogen, phosphuretted hydrogen, and decomposing organic miasma, we are to look for an explanation of the ill effects which decomposing organic matters produce on the health of a population. Of these three it is probable that the sulphuretted hydrogen is least injurious; this, at least, is certain, that a person may breathe an atmosphere rendered most offensive by this gas, and that for many hours daily, without experiencing any ill effects. We are in the habit of frequently spending several hours in a laboratory, where sulphuretted hydrogen is evolved in quantity sufficient to annoy the surrounding neighbourhood, without either ourselves or assistants suffering in health therefrom. No doubt, this gas is a powerful poison when inhaled in a concentrated form; but like many other poisons, it seems to lose its energy by dilution. We have suffered much more from the inhalation of phosphuretted hydrogen; and have rarely prepared the latter gas in any quantity without getting headach, and suffering for some time after from a feeling of oppression. The whole of the effects produced by exposure to putrid emanations cannot be accounted for, however, by the known effects of any of the definite products of putrefaction. It is very unlikely, indeed, that a person suddenly exposed to an atmosphere containing the proportions of sulphuretted, carburetted, or phosphuretted hydrogen, ammonia, or carbonic acid, either singly or together, contained in the most concentrated putrid exhalations, even such as escape on the bursting of a putrid corpse, should be attacked by a syncope, followed by symptoms of such severity as there is reason to believe frequently result from sudden contact with putrid exhalations. There are residual phenomena to be accounted for, namely, those symptoms in excess over what the various acids and bases evolved during putrefaction are known to be capable of producing. M. Duvergie states that he and M. Piedagnel were present at a disinterment conducted with considerable precautions, and yet they were both seized with illness, and M. Piedagnel was subsequently confined to the house for six weeks. Now a continuous illness of this kind could scarcely be ascribed to the inhalation of sulphuretted hydrogen or carbonic acid, the known effects of which are sudden and transient. It is, therefore, generally agreed to attribute these surplus effects of putrefactive emanations to the influence of a decomposing organic matter, which the experiments of Liebig and others have demonstrated to exist in such atmospheres. The condensed dew obtained from the air of marshes and of churchyards has been found to become turbid upon keeping, and to deposit a brown

sediment. This dew is precipitable by a solution of nitrate of silver, and darkened by concentrated sulphuric acid. These reactions show that organic matter in a state of change is contained in these atmospheres. To this organic matter physicians are in the habit of attributing certain of the poisonous effects of putrefactive exhalation; but it must be remembered that all such explanations are as yet hypothetical.

All the products of the putrefactive process are not odorous. Carbonic acid—which, in a concentrated form, is as poisonous as sulphuretted hydrogen—has no odour. The decomposing organic matter contained in the gaseous products of putrefaction, and to which such baneful effects are commonly attributed, cannot be detected by the smell. Yet it has been asserted that, if the gaseous products of putrefaction be deprived of odour, this is an evidence of their being no longer injurious to health; or, to use the jargon of the day, “if they be de-odorised, they are also disinfected.” Mr. Chadwick, who has been in general very cautious in his generalizations, says: “All my experience, and all my information, go to vindicate the integrity of the nose,—that if you did not smell it” (sewerage) “at any place, there would be no injury from it; and if you did, there would.” As might be expected, Mr. Ellerman goes much farther. He treats us to the following beautiful piece of reasoning:

“If it be true that the sense of smell with which an all-wise Providence has endowed us, is given, among other purposes, in order to warn us against miasmatic exhalations; and if it be also true that aught which depresses the human system predisposes it to contract disease, and that powerful odours have this depressing effect in a large degree (facts which have never been disputed);—I am at a loss to discover upon what grounds it can for a single moment be reasonably contended that deodorants are not necessarily disinfectants.”

There is much virtue in an *if*, but we are not inclined to give Mr. Ellerman the whole benefit of it on the present occasion. We may be permitted to ask, *if* the sense of smell be given to warn us of miasmatic exhalations, why does it not warn us of other poisons; yet the odour of prussic acid is not usually considered disagreeable, and carbonic acid has no odour at all? If the sense of smell has this protective influence, why should not the sense of taste similarly guard us; yet both white arsenic and sugar of lead are rather sweetish than otherwise? There is, in truth, no such law as that laid down by Mr. Ellerman; and then as to all powerful odours having a depressing influence, any old woman could have told him that *sal volatile*

and spirits of hartshorn are used with the very opposite purpose.

“ In reference to measures of alleviation and prevention,” say the Metropolitan Sanitary Commissioners, “ we have received evidence as to the effects of solutions of the chloride of zinc, of the nitrate of lead, and other substances intended to decompose noxious gases. The evidence on this subject will be found to be of scientific interest, though it is to some extent conflicting, and the conclusions undetermined. Dr. Lyon Playfair, Professor Graham, Professor Hoffman, and Mr. Cooper, concur in attributing disinfectant properties to chlorine and certain acid gases, in the case of typhoid fevers, but not in cholera; but they deny to nitrate of lead, and other so-called disinfectant salts, or any similar substances, the possession of qualities to effect more than to deodorize decomposing animal or vegetable substances. Dr. Lyon Playfair affirms, with respect to chlorine, that he has had abundant proofs of its power of diminishing and mitigating infection in the case of typhoid fever: it destroys all decaying emanations. Dr. Leeson and Mr. Grainger, on the other hand, consider that the disinfectant salts have more powerful and more valuable properties for decomposing the noxious gases. One of our colleagues also has used the nitrate of lead extensively in the London Fever Hospital, during the late extraordinary prevalence of fever, and from his observation of its effects he is of opinion that it has apparently assisted in maintaining the purity of the air.”

So to this meagre opinion have dwindled all the barefaced quackery which we had occasion to expose in our Seventh Number. “ Our colleague,” say the Commissioners, told Lord Morpeth, in July last, that “ his Lordship had in his own hands, and had had for some months, the sure and certain means of preventing the extension of fever to the immediate attendants on the sick ;” and “ that, by means of this agent (the nitrate of lead) medical men, who are always in imminent danger, and who so often suffer, might perform their arduous duties with perfect security.”

Well, it was to be expected that the man who would be capable of penning such arrogant and unfounded assertions would continue blindly and obstinately to cling to his superstition. And we are, therefore, not surprised to learn, that, in spite of the *exposé* which we were compelled to make in the Number of this Journal for August last, and in spite of the damning fact that the misguided individual who was the chief promoter of the imposition, has since sealed, by his own death from malignant typhus, the futility of the pretended disinfectant powers of nitrate of lead,—we repeat that we are not surprised to learn that Dr. Southwood Smith and Mr. Grainger still con-

tinue feebly to advocate the disinfectant powers of nitrate of lead. But it is satisfactory to us to find that such men as Dr. Lyon Playfair, Professor Graham, Professor Hoffman, and Mr. Cooper,—in fact, all who have followed us in the consideration of the subject,—have entertained sentiments analogous to our own.

But it is not true that nitrate of lead or chloride of zinc possess deodorizing powers. It is quite true, and is long known, that if a metallic solution be added to a solution of hydrosulphuret of ammonia in sufficient quantity, it will destroy the odour of the latter; but this single instance of chemical action does not entitle the metallic solution to be called a deodorizing agent. Any one who may have fallen into the fallacy of drawing a general deduction from a particular instance, will find cause to correct his opinions, if he perform the simple experiment of leaving some milk in an open vessel until it smells strongly of hydrosulphuret of ammonia, and then adding an equal bulk of a concentrated solution of nitrate of lead. The odour before the addition of the salt, already sufficiently offensive, will be found subsequently still more disgusting; for the smell of hydrosulphuret of ammonia, bad as it is, is not by any means so odious and sickening as that of the phosphuretted hydrogen, which, by the destruction of the former, is left to act alone upon the sense.

Taking these deodorizing agents at their true value, and seeing that they do not destroy the worst of those gaseous emanations from putrefying substances which predispose to disease, nor even render latent the most disagreeable odours, we are led to think that their consideration ought to be neglected in any legislative enactment for remedying the present sanitary condition of large towns. It is the more necessary to limit the proposed means of sanitary improvement, inasmuch as those means must necessarily entail a considerable outlay, to which every ineffectual or doubtful expedient must add an increase, and thus retard and postpone the measures which it is agreed would be salutary and practicable.

Let us now turn our attention to the latter class of measures; and if it be admitted that the great excess of mortality in towns over that in the open country is due to the proximity of decomposing animal substances, a position to which we think an exception cannot be taken, there will be no difficulty in determining the means which ought to be had recourse to. In the first place, all the great foci of putrefaction ought to be removed from the proximity of a dense population. No churchyards, slaughter-houses, or other receptacles of a like nature,

should be permitted in towns. This is a principle so self-evident, that, however difficult it may be to make its importance popularly understood, we do not think it necessary to insist on it in an article like the present.

The question of drainage is a more difficult one. It is primarily this: ought the Government of a country to permit the manure generated in the cities to go to waste, or to cause it to be economized? In order to answer this question we should be enabled to tell the value of this manure to the agriculturist, and to be enabled to balance this value against the expenses of the necessary structural arrangements for its collection, as well as those for its transit. We were lately told by a gentleman who has taken a very active part in sanitary reform, that he did not think that it was intended by Providence that the manure generated in cities should be economized for the benefit of existing generations; but that its use was destined for the countries which were, by and by, to rise out of the seas. We confess that we are not sufficiently interested for posterity to put any importance on this view of the subject. We shall feel quite content if it be shown at all possible to convert this enormous quantity of valuable manure into real benefit to the inhabitants of the existing countries of the earth.

One thing is quite evident, that if all the rain-water which falls in cities, together with that of all the tributary streams that flow into their rivers, with the water used for flushing the ordinary sewers, and for other purposes, be permitted to mix with the real manure, there will not be any economy in saving the latter, for it will become so diluted as to be actually good for nothing. This is not the way in which the Chinese utilize this manure; it is not by mixing it with an enormous quantity of water, but by drying and pulverizing it. If there be no way of collecting the manure of cities except by the formation of vast cess-lakes in their vicinity, we say that it would be far preferable to let all this manure run into the sea, and be for ever lost. But we do not see why this should be so. We cannot comprehend why that which is practicable in Edinburgh should not be practicable in London or Dublin. If a sufficiently stringent police law was in operation, and the duty of seeing that the night-soil of every house was diurnally collected and appropriately bestowed for agricultural purposes was committed to the police, under the supervision of a paid magistracy, we feel convinced that all the benefits already obtained in the metropolis of Scotland could be gained in those of England and Ireland.

With respect to scavenging and sewerage, our experience is, that if scavenging be regular and particular, it is far better than an imperfect sewerage. We were much struck with the truth of this in Waterford. Lady-lane, in that ancient city, is one of the most respectable localities. It is an exceedingly narrow lane, with fine and lofty houses on both sides. The fall for surface drainage is comparatively trifling, and it has no sewer, yet the atmosphere is far sweeter than in similar parts of the city where there are sewers. In fact a sewer, unless it be flushed and trapped, is a nuisance ; it is a retort, vomiting back the undigested fumes of putrefaction. We say this with respect to all sewers, even when constructed on the most scientific principles, although we acknowledge, from experience, that those of Holborn and Finsbury are less liable to the charge than the usual flat-bottomed ones that are still being constructed in the majority of districts.

Dr. Collins's plan of ventilation is intended simply as being applicable to the dwellings of the poor. It consists in having apertures in the upper and lower parts of each room, through each of which a short tube passes, which is divided by a diaphragm of perforated zinc, and in very cold weather the tube may be completely closed by a wooden stopper. This arrangement is probably as easily capable of application as any other that has been proposed ; but before it, or any other mode of ventilation, will be adopted, it is obvious that the people must be instructed as to its utility. We may mention that we were informed by Mr. J. Grubb, of Clonmel, who has paid much attention to the subject, that the perforated zinc plates are very apt to become choked by dirt in a short time.

This article having exceeded the limits which we had originally allotted to it, we cannot at present enter more particularly into the discussion of proposed structural improvements, and we shall therefore conclude by laying before our readers the deductions arrived at by the Sanitary Commissioners as to the nature and progress of the cholera, which is hourly approaching these islands. These deductions are as follows:

“ That the disease (cholera) as it has recently appeared in Persia, in Trebizond, and in Russia, is unchanged in its general character, and that it is at the present time, according to the latest information, in a similar position to that in which it was in 1831, when its progress was arrested by the frost, previously to its advance upon Europe immediately after the thaw took place.

“ That the more recent experience in Russia has led to the general abandonment of the theory of its propagation by contagion ; a

conclusion in which, after a full consideration of the evidence presented to us, we fully concur.

“ That the views which we adopted in relation to the inexpediency of special cholera hospitals, except in cases of peculiar necessity, have been confirmed by the coincident adoption of the same conclusions in Russia.

“ That we have received much information tending to establish the conclusion that cholera is not the sudden disease which has hitherto been supposed ; that the commonly known form of the malady is, in reality, its second stage ; and that its first stage is manifested by the premonitory symptom of diarrhœa, which is commonly unattended to, but which, if met by the strict observance of proper regimen, and by appropriate medicine, may be arrested before passing into the more violent and fatal stage of the disease.”

The foregoing are the most important conclusions to which the Commissioners have arrived ; they are entitled to serious consideration. Although we may not coincide with them in every particular, we think that the fact is sufficiently established, that it is not by a *cordon sanitaire* and strict segregation that the approach of cholera can be withstood, or its spread prevented. Like all other epidemics, its greatest enemies are ventilation, cleanliness, and drainage.

We cannot terminate this article without again urging on our readers the importance of the subject. Nearly twice as many die in cities as in the open country ; the duration of life is little more than one-half in the former to what it is in the latter. Can nothing be done to check this enormous mortality ? We know the cause of this mortality. It is produced by the effluvia of organic putrefaction, permitted to accumulate by our burying our dead(*a*) and slaughtering the animals which we use for food in the immediate vicinity of our dwellings ; and still more fatally by our remaining exposed to the decomposing products of the waste of the living, preventing the dilution and diffusion of that waste by parsimony of air, and water, and space ; and if we do construct arrangements for the removing of that waste, constructing them in such a manner that, as in the instance of common sewers, they serve as receptacles where poison becomes brewed, to be eventually spewed out through gully-holes and vents of every kind,

(*a*) Dublin has been much improved during the last ten years in this respect. The establishment of three large cemeteries at a considerable distance from the city had reduced the burials within the municipal boundaries to about a fifth of the previous amount in 1841. From Mr. Wilde's investigations it appears that for the two years ending 6th June, 1841, the burials were : outside the city, 10,750, and in the eighteen grave-yards within the municipal boundary but 2766.

in the midst of the living crowd. We know all this, and we spend our time calculating remedial schemes, which would require centuries to complete, and millions sterling to execute, while we neglect the simplest and most obvious methods of prevention. If we have occasionally, in the course of this article, spoken lightly of proposed sanitary improvements, it is because we consider sanitary reform to be really the most important social question of the age, and we should not wish its progress to be retarded by false philosophy or meretricious ornament.

A Dictionary of Practical Medicine, comprising General Pathology, the Nature and Treatment of Diseases, Morbid Structures, &c. By JAMES COPLAND, M. D., F. R. S. Parts XI. and XII. London, Longmans. 1847 and 1848.

FIFTEEN years have now elapsed since Dr. Copland published the First Part of his stupendous work on Practical Medicine. With the issue of the Fourth Part, in 1836, he appended to his Prospectus a paragraph stating that the work would be completed in five or six Parts, and in the course of a few months from that date. Notwithstanding that pledge to his subscribers, the Parts have now extended to four whole and eight half Parts; the *few* months to *fifty-two*; and the letter P is not yet completed.

We are not, however, at present about to reiterate the oft-repeated accusations of broken faith with which the weekly Medical Journals have abounded for many years, and to which Dr. Copland has turned the adder's ear; but we wish to hold up his case as an example to authors of every class, to deter them from going to Press, more particularly if about to publish in Numbers or Parts, until the entire, or, at least, the greater part of their intended work, is in manuscript. Independently of the injury which "hope deferred" must have on the mere sale of a book, there are far weightier and much more important reasons for the soundness of this rule. The chief of these respects the fame of the author: a book published, as Dr. Copland's has been, in Numbers, at such long intervals, must, of necessity, be very unequal, both as regards the writer's style and the discoveries of his contemporaries. We thus find that some of the articles contained in the earlier Parts of this Dictionary are far behind the pathology, physiology, and practice of the present day; and yet they form part and parcel of the same book with the Number just published. The author, also, becoming at length callous to complaints, spins out the various subjects

proper to his work to an unconscionable length,—an accusation to which for many years Dr. Copland has been peculiarly open,—nay, even introduces some subjects altogether foreign to the scope of his undertaking. Of this latter charge, Part XII., the last published, is a remarkable example. It contains 144 pages, of which *twenty-four* are devoted to the completion of diseases of the pleura, commenced in the Eleventh Part, and the remaining 120 to a disquisition on poisons, not yet completed. We cannot understand on what grounds Dr. Copland introduces an essay on toxicology into his Dictionary; a subject he admits his limited space must of necessity render incomplete; one, too, which could not be done justice to by any individual who had not devoted years of labour and observation to its practical study; and a subject, moreover, on which the medical witness will not look for information in Dr. Copland's Dictionary of Practical Medicine, with such works as those of Christison and Taylor in the English language. We feel, then, compelled to raise our voice against this mal-appropriation of space and time, and public indulgence, hitherto so liberally granted; and we at length begin to fear that Dr. Copland's work is, for many years to come, likely to prove a Tantalus' cup to the medical profession.

The Eleventh Part commences with the continuation of the article on yellow fever, or, as the author has termed it, hæmagastric pestilence. It is an excellent compilation, derived from most of the ancient and modern writers on this disease, but might, considering the date of its publication, contain a more complete account of the recent epidemics described by several American physicians. Dr. Copland differs from those who consider that yellow fever is merely a variety of continued fever, an opinion which has obtained very general credence of late years, which is strongly insisted on by Dr. Graves, in the lecture on yellow fever in his Clinical Medicine, and which has received additional proof from the Scotch epidemic of 1843–44, as described by Dr. Cormack, Dr. Arrott, and others. He thinks that it is a special fever, or rather pestilence, to be classed with cholera and the plague; strongly insisting on its *individual* infectious nature, and the necessity of the adoption of sanitary regulations for the protection of the general community from its attacks.

Plague, which the author terms septic or glandular pestilence, is the next subject treated of; and we then have a chapter devoted to a disquisition on the means best calculated to prevent the spread of pestilential diseases, including a consideration of the quarantine laws, sanitary measures, and medi-

cinal prophylactics. It is an able and masterly review of the whole of this "*questio vexata*," the perusal of which, in its entire state, we strongly recommend to our readers, containing the communication of facts too valuable and too important to admit of either analysis or condensation.

Essays on phlegmasia dolens and pityriasis follow in alphabetical order; both of which are articles of average merit, not requiring any detailed notice. To the next subject, however, diseases of the pleura, we purpose to call the attention of our readers somewhat at length.

We have often been inclined to doubt the advantage of short nosological definitions of disease; they too frequently lead the mind of the student to a system of generalization, and thus prevent the special consideration of those minute symptoms on which differential diagnosis depends. It is, however, an ancient custom, and one, therefore, from which modern writers are loth to depart. Dr. Copland, throughout his Dictionary, has been careful to adhere strictly to it; and with all the aids at his command from the discoveries of modern medical science, we think that he has scarcely, if at all, in any instance, improved on Cullen. Take, for example, his nosological definition of pleurisy:

"Acute pain in the chest, aggravated by inspiration, commencing with chills or rigors, followed by increased heat, a hard and accelerated pulse, short dry cough, and by difficult, short, or disordered respiration."

But this may be pneumonia, pericarditis, inflammation of the peritonæal surface of the diaphragm, or splenitis! Of course, these symptoms are fully dilated on, and the differential diagnosis explained, in the substance of the essay; but the conciseness and apparent completeness of the definition, often tempts the student we fear to rest satisfied with the short road to learning thus *in limine* presented to him.

The structural changes which constitute pleurisy are but briefly noticed by Dr. Copland, as he previously described the morbid alterations of serous membranes under the head of "Peritonæum." He agrees in the view generally adopted, as to the diminution of the healthy serous exhalation in the first stage of inflammation of serous membranes, but limits its continuance to a very short period of time. That it does exist at all is, we think, very problematical; it has never been detected after death, even in the neighbourhood of those parts of the pleura which are coated with lymph, and where we ought to find it as indicating the spread of inflammatory action; and

we fully agree in the opinion expressed by Hasse, that "the so-called *pleurésies sèches* of Andral are probably to be understood in a comparative sense only,—effusion too scanty to be detected during life being counted as nothing compared with the amount contained in other cases."(*a*)

The author next passes in review the symptoms and signs of pleurisy. The acute pain, or stitch in the side, so characteristic of the disease, is, we agree with him in thinking, caused by the act of inspiration stretching the fibrous layer of the membrane, in its inflamed condition. We are thus enabled to understand why a deep inspiration should cause such an increase of pain as to be altogether insupportable, and compel the patient to emit an involuntary cry; and also why the pain is almost invariably ascribed to a spot below the nipple of the affected side, this being the part of the pleura which, during the act of inspiration, is most put on the stretch, corresponding as it does to the centre, or most prominent part, of the arch formed by the parietes of the thorax. It is generally remarked as a circumstance difficult to be accounted for, that in some pleuritic patients this pain is very slight, and in others scarcely, if at all, felt, while in most it is so acute as to be reckoned one of the most certain symptoms of the disease; but, knowing the great difference which exists as regards sensibility to pain amongst persons apparently of the same diathesis, and even of the same family, we have always ascribed this fact to *individuality of constitution*, which, as Andral has well proved, influences in a remarkable degree the character of the effusion in pleuritis.

In Cullen's definition of pleurisy, *decubitus* on the affected side is placed amongst the most prominent symptoms; so certain a sign was it, in his day, believed to be of pleuritic inflammation. Since, then, we find great discrepancy among writers on the disease, as to whether patients lie on the healthy or diseased side. Dr. Stokes states the rule to be, that, in the first stage, the decubitus is on the healthy, in the second, on the diseased side; and with this view Dr. Watson concurs. Drs. Bright and Addison state, as their opinion, that in pleurisy situated at the upper part of the chest the patient lies indifferently on either side, or on the back; but if it be situated very low down, he prefers lying on the side affected. Dr. Copland believes that the decubitus is most frequently on the back in the acute stage, sometimes on the sound, and rarely on the affected side; but that, after effusion has taken place, the patient

(*a*) Hasse's Pathological Anatomy, Sydenham Society's edition, p. 184.

can only lie on the back or the affected side. All, however, admit that there are many exceptions to the opinions they state. We agree with all as to the decubitus in the second stage being on the affected side, a position assumed by nature to allow the greatest possible amount of expansion to the healthy lung; but as regards the first stage, we have seen some patients lie on the affected, some on the healthy side, some on the back, and others, as remarked by Andral, on the back with a slight inclination to one side. We have, however, invariably remarked a connexion between the character of the pain and the decubitus; that is to say, those in whom pressure with the fingers over the intercostal spaces augmented the pain lay on the back or the healthy side, evidently with the view of relieving the painful parts from the pressure of their body; while those in whom such pressure did not augment the pain, as is frequently the case, lay on the affected side, as in this position there is the least mobility of that side of the thorax, and the inflamed pleura is thereby kept most at rest.

In his analysis of the physical signs of pleurisy, we do not find that Dr. Copland has added anything to our previous knowledge on the subject. He altogether misapprehends Dr. Stokes in stating that he agrees with M. Reynaud as to the friction sound being due to a defective lubrication of the opposite pleural surfaces during the early or incipient stage of inflammation. Dr. Stokes is of opinion,—we use his own words(*a*),—that in inflammation of the pleura, pericardium, and peritonæum, the friction signs are caused by the existence of unorganized lymph on the surface of the serous membrane. And with this opinion we fully agree, for how could the mere absence of moisture on the opposed surfaces of a perfectly smooth, soft membrane give rise to the peculiar, creaking, friction sound we hear during the gentle gliding motion caused by expiration and inspiration, and this motion, too, so much diminished in pleurisy.

In speaking of *latent* pleurisy, our author states, that one cause why the disease may be latent arises from the pain felt being referred to some part remote from the thorax; as, for example, in three cases which he lately witnessed, in which the pain was felt in the iliac region of the affected side, and not at all in any part of the chest, even upon a full inspiration or coughing; and adds, that this form of latent pleurisy “has hitherto not been noticed by writers.” This latter assumption

(*a*) A Treatise on the Diagnosis and Treatment of Diseases of the Chest, page 472.

of originality is altogether unwarranted, and has surprised us much in a writer of such extraordinary research as Dr. Copland. Andral, in describing that form of the disease where the inflammation attacks that portion of the pleura covering the upper surface of the diaphragm, says that the pain often affects the hypochondrium, and even extends as far as the flank, so that it might be mistaken for abdominal inflammation; and out of four cases which he narrates, the disease was for a long time latent in one. Cruveilhier, also, observes that he has known the pain affect the loins, and simulate lumbago.

Empyema is next treated of at much length and with great ability; we cannot find that Dr. Copland has omitted any of the recent investigations into the diagnosis and pathology of this result of pleuritic inflammation, most of which must be ascribed to our own countrymen. He awards their due meed of praise to Dr. Stokes and Dr. Macdonnell (now of Montreal), but by some oversight omits to mention the name of the late Dr. George Greene, Professor of Medicine in our School of Physic, to whom the whole merit of whatever information we possess, as to the copious purulent expectoration which occurs in some cases of empyema without any fistulous opening into a bronchial tube, is due; for he was the first to describe, in the seventeenth volume of our former Series, this *metastatic* mode adopted by nature for the removal of the purulent accumulation in the pleural cavity, and the perplexity which might be thereby caused in our diagnosis.

In empyema, when the fluid causes ulceration of the pleura and of the thoracic parietes, so as to point externally and thus become evacuated, we look upon it as a much more favourable sign than when it escapes by a fistulous opening through the lungs and bronchi; but Dr. Copland classes both these modes of termination of the disease together, and looks upon them as being forms from which recovery rarely takes place. The signs of pleuritic effusion pointing externally are often very obscure, and especially in children, in whom, as Dr. Williams remarks, the matter sometimes burrows under and between the muscles and integuments of the chest, and points at several places, and often at a distance from the pleuritic perforation. Thus it sometimes points under the pectoral muscle, and not unfrequently close to the spine. In one of the first cases of empyema which we ever saw, the matter lay so deep beneath the long dorsal muscles that for many days it completely escaped detection, notwithstanding attention having been called to the part by the muscular pain complained of there by the patient himself; nor could fluctuation be detected with the most careful

attention. Eventually the matter made its way beneath the scapula and pointed at the axillary edge of the latissimus dorsi; and when the abscess was opened pus could be forced out of the orifice, by pressure over the indistinct tumour lying along the spine. This case ultimately recovered; indeed, we have generally regarded the termination of empyema by perforation through the thoracic parietes as a favourable result.

Much stress is laid by Dr. Copland on the *sensible* properties of the blood in pleurisy, as furnishing important information with regard to the states of vital power and of vascular action characterizing the disease at the time blood is abstracted. He complains with much reason of the neglect into which this source of valuable information has recently fallen, and cavils at the over-attention now paid to its *chemical* constitution.

“This important source of information,” says he, “is neglected, and the particular mode of studying the conditions of the blood in disease that actually furnishes the smallest amount of useful information to the practical physician is that which now attracts attention, although this very small amount cannot possibly be ascertained by the practitioner at the only time when it can prove in any way advantageous, whilst it causes the neglect of that knowledge which instantly furnishes the most important pathological and therapeutical indications.

“Let the candid and practical reader peruse the accounts of numerous analyses of the blood made by German and French chemists and pathologists, especially those made with a view of showing the composition of it in pneumonia, pleurisy, rheumatism, erysipelas, &c., and he will find, according to the summaries of these analyses given in Simon's *Animal Chemistry applied to Physiology and Pathology*, with the additions by Dr. Day, the very slight differences, or even the sameness, of the results, as regards these and some other diseases. Having obtained the full amount of knowledge he possibly can derive from these sources, let him next endeavour to apply it to practical purposes; and if he can do so, with only one-tenth of the advantage which may be derived from attention paid to, and an acquaintance with the sensible appearances and properties of the blood, he will be much more fortunate than I can credit.

“It is very justly remarked by Vogel, that it is very difficult, indeed impossible, to draw any certain conclusions from the statements of the above-mentioned and other observers, respecting the changes of the several constituents of the blood, or the causes of these changes. In fact, our whole knowledge of the chemical constitution of the blood in both health and disease is most unsatisfactory, and the statements of different writers vary so widely, that it is impossible to deduce any general laws from them. And I may add to this opinion of this able pathologist, that writers on the chemical constitution of the blood in disease have shown only how very

little information they are able to give upon the subject; and that little evinces its insufficiency even for the purposes of either a theory or a hypothesis, and its almost total inapplicability to any practical purpose. It is, therefore, to the old fashion of observing the sensible changes and states of the blood, and of connecting these changes with the states of vital power and of vascular action upon which they manifestly depend, that we must recur with any hopes, in the present state of our knowledge, of practical advantage."

The combination of pleurisy with pneumonia—pleura-pneumonia—Dr. Copland very correctly divides into three forms: first, that, in which pneumonia is associated with slight pleurisy; second, the combination of pleurisy with slight pneumonia; and third, pleura-pneumonia, properly so called, in which the two affections are nearly equal in degree. The third form is much less frequently met with than either of the two first; as originally noticed by Laennec, it is, *cæteris paribus*, less dangerous than simple inflammation of either the pleura or the lungs.

Having first taken a short review of the different plans of treatment proposed for pleuritis, the author describes the plan recommended by himself; it appears to be a modification, or rather a combination, of most of those he has previously described; that is to say, he does not recommend blood-letting, mercurials, antimonials, diaphoretics, purgatives, or counter-irritants exclusively, but he employs all, and somewhat in the order we have enumerated them. Nor does he at all enter into the controversy as to whether mercurials given so as to produce speedy salivation, or tartar-emetic administered as a contra-stimulant, should be preferred in the treatment of pleuritic inflammation. The mercurial plan, our readers are aware, is now most universally relied on by the British School of Medicine; the chief indications expected from the production of salivation, being the arrest of inflammatory action, the prevention of effusion, and the promotion of absorption if effusion does take place. The contra-stimulant method of treatment was much relied on by Laennec, and is still chiefly used by the continental school. The latter, in our own experience should be preferred, where we see the patient at the very commencement of the disease, as it is more certain to cut short the inflammation at its very onset; but where the effusion, whether solid or liquid, has already taken place, mercury given so as to produce *speedy* manifestation of its effects on the system can alone be relied on. Moreover, the tartar-emetic plan is not at all admissible in the very old or debilitated, or in broken down habits of body, and is, above all, contra-indicated where

the type of the season is of an adynamic or typhoid nature, for, like most other diseases, pleuritis assumes the character of the prevalent epidemic type.

In the application of blisters in pleuritis and in other diseases of the lungs, we have found much advantage from adopting the dressing of raw cotton first suggested by Dr. Douglas Maclagan of Edinburgh. The blister is left on for five or six hours, according to circumstances; a poultice is then applied for two hours, and the raised cuticle having been removed with a pair of scissors, the raw surface is covered with a thick layer of French wadding: the blistered surface heals completely in about twenty-four hours, but it is so little painful after twelve hours that percussion and auscultation may be performed over the part,—a matter of much importance in pulmonary affections. We have now used this plan of applying and dressing blisters for several months both in hospital and private practice, and we can confidently recommend its employment to our readers, as a very great improvement on the old system.

As regards the operation for empyema, Dr. Copland agrees with all recent writers as to the symptoms demanding the operation, and its mode of performance. He insists, with much truth, on the advantage of operating as early as possible, while the lung is still in a sufficiently healthy state to recover its normal condition after the evacuation of the fluid, and thus prevent either of two great evils, a recurrence of the effusion, or contraction of the thoracic parietes at the affected side to fill the void left. He fully agrees with Dr. H. Roe in the opinion expressed by him, that in no instance can the patient be *perfectly cured* when the operation is delayed until five or six weeks after the commencement of the effusion. He also admits the correctness of the, we believe we may call it, axiom, that where indications appear of the puriform nature of the effusion the operation can scarcely be performed too early; but he does not lay sufficient stress on the advantage to be derived from the employment of the exploring needle to ascertain this. Dr. Copland recommends the Hippocratic method of evacuating the fluid at successive times, chiefly because it gives the lungs time to expand; but we do not think any decided rule of this sort should be laid down: circumstances differ so much in different cases, that what would be the best mode of procedure for one might be the very worst for another.

The next article in the Dictionary is a short essay on *the structural changes of the pleura not necessarily arising from inflammation*. It is an excellent *resumé* of our present know-

ledge on the subject; but we do not find sufficient novelty in it to induce us to give any analysis of its contents. The same remarks apply to the short articles on *pleurodynia* and *pneumothorax*.

We have had much pleasure in bringing under the notice of our readers two additional Parts of Dr. Copland's great work, and we only wish that he would afford us an opportunity of reviewing his labours at shorter intervals. It needs not to express our opinion of the Dictionary of Practical Medicine, —an everlasting monument of talent, industry, and research, of which the British School of Medicine has just reason to be proud, and which, when completed, must earn for its author a never-dying fame.

A practical Treatise on the Causes, Symptoms, and Treatment of Spermatorrhœa. By M. LALLEMAND, formerly Professor of Clinical Surgery at the University of Montpellier, &c. Translated and edited by Henry J. M'DOUGALL, &c. London, Churchill. pp. 333.

WE do not think it necessary to apologize to the practical physician, for bringing before his attention the subject of spermatorrhœa. The disease being in many instances the result of a disgusting vice, ought not to be a reason for the medical man to discard its consideration: if we even leave syphilis out of the question, how few disorders of the frame are there, which are not the results of human faults or follies. It is not the province of the physician to canvass the moral or immoral causes of disease; his office is to relieve suffering, from whatever source it may arise, and true dignity will be best maintained by performing this task in the most perfect manner. The judicious physician, therefore, will act most in accordance with his honour by investigating the phenomena of each disease, and the means of its alleviation, no matter how abhorrent to every principle of propriety or delicacy may have been the causes which produced it.

The history of spermatorrhœa is as old as the history of medicine. Hippocrates gives a description of it, under the name of "*tabes dorsalis*," much more graphic than any which has since been published. Wickmann in 1817, and subsequently, Sainte Marie, wrote valuable monographs on this disease; but in modern times no one has paid so much attention to the subject as the author of the present book, M. Lallemand, the late surgical professor at Montpellier. We shall in the following

pages furnish our readers with an analysis of the volume before us, together with such critical annotations as our experience may suggest to us.

Involuntary discharges of the seminal fluid may occur under various conditions, which differ much in their respective degrees of importance. They may be caused by too great excitement of the genital apparatus, following venereal excesses, or continued masturbation; or they may occur spontaneously during sleep, in a healthy and continent individual, and probably may, under such circumstances, prove, as M. Lallemand thinks, rather beneficial than injurious. It is manifest that a judicious discrimination of the nature and causes of these emissions is necessary to enable us to assign them as the causes of general and severe symptoms.

M. Lallemand thus recapitulates the causes which he supposes may give rise to spermatorrhœa:

“The first I considered was *blennorrhagia*, tracing the inflammation from the orifice of the glans penis, and considering all the changes produced by it in the tissues. Secondly, I spoke of *cutaneous affections*, pointing out the mode in which, by propagation of the cutaneous irritation through its continuity with the mucous lining of the urethra, involuntary seminal discharges arise. Thirdly, I considered the *influence of the rectum*. This I divided into two kinds; the one being mechanical, arising from an obstacle to defæcation or from constipation, the other a vital action, producing its effects by the extension of irritation from the rectum to the prostate and seminal vesicles. The fourth cause of which I treated was *abuse*. Here I pointed out the various causes of abuse, their importance, and the varieties of abuses. The fifth cause that came under my notice consisted of *venereal excesses*, and here I shewed the circumstances which constitute excesses, and the conditions in which slight sexual intercourse may be injurious. Sixthly, I considered *the action of certain medicines* in inducing involuntary seminal discharges. I shewed the effects of astringents, purgatives, and medicines which stimulate the urinary organs, such as nitrate of potass, &c.; I also mentioned the action of coffee and tea when taken in excess. Seventhly, *the action of the cerebro-spinal system* occupied my attention. I here considered the action of the cerebellum and spinal cord. Eighthly, I considered congenital predisposition; and here malformations came under my notice, with phymosis, exuberant prepuce, vitiated secretion of sebaceous matter, hereditary predisposition, congenital debility, &c.”

The foregoing quotation will serve to shew how numerous the causes are to which M. Lallemand ascribes this disease. We shall now proceed to consider these causes somewhat in detail.

Hippocrates wrote only of venereal excesses as the cause of tabes dorsalis: Tissot, and other writers, have added masturbation. The remaining causes enumerated in the above extract have been, for the first time, suggested by M. Lallemand. Of all these he considers blennorrhagia, or gonorrhœa, to be the most active and the most direct, as well as the most easily appreciated. To understand M. Lallemand's theory of the production of the disease, it is necessary to know the pathology which he assigns to spermatorrhœa. Former writers imagined this disease to be essentially one of debility: whether it was supposed to arise from venereal excesses or from masturbation, it was to the weakening effects of these causes that pathologists solely looked. Diminished innervation, or feebleness of the genital apparatus, was in every instance regarded as the cause of the involuntary emissions and other symptoms which characterize the disease; but M. Lallemand, while he admits the debilitating influence of these causes, at the same time looks on the immediate and nearly universal cause of diurnal emissions to be of a local and inflammatory nature. This is one of the most important results of the investigations so long and assiduously pursued by the Montpellier ex-professor. If it be true, it leads to a rational and, according to him, a very successful mode of treatment. We shall proceed to lay before our readers the reasons offered by M. Lallemand for his belief in the inflammatory nature of this disease.

This pathologist states, what all know to be true, that the genital organs are very seldom examined *post mortem*, except when some remarkable symptoms during life lead to such examination: the chief causes of this neglect are, no doubt, the trouble and difficulty of either exploring the parts *in situ*, or of removing them without injury. According to M. Lallemand's experience, if these organs were generally and carefully studied at autopsies, structural changes would frequently be detected in many cases in which no local symptoms had attracted attention during life. He describes certain cases in which ulceration was found to have existed in the seminal vesicles, and in which either recent albuminous effusion, or old adhesion, was discovered on the adjacent peritonæal surface; and he appeals to the frequency of the latter adhesions as a proof that similar inflammatory attacks of the vesiculæ seminales are very common, although they may leave after death no other evidence of their previous existence, except the presence of these old false membranes on the adjacent serous surface. He sometimes found that the orifices of the ejaculatory ducts, in place of being circular, formed one elongated and irregular cleft: the

ducts themselves may be very much enlarged; and he has once seen the orifice sufficiently large to admit a goose-quill. He has found the ducts sometimes insulated, as though dissected, by the suppuration of the prostate; at other times thickened, hardened, and cartilaginous, or even containing osseous granules. In cases of suppuration of the seminal vesicles, he has generally found the pus to present all the appearances of having been long retained, a circumstance not difficult to understand when we recollect the structure of these receptacles, composed of ramified cells, and the manner in which they are placed out of the direct course of the semen, to be used as reservoirs for it. In some cases he has found, contained in the cavities of the vesicles, a yellowish, homogeneous substance, soft, like plaster, or even chalky, the true origin of which he believes to have been inspissated pus.

M. Lallemand attributes, with great probability, these appearances to an inflammation which had spread from the urethra to the genital organs. Broussais's proposition may not be universal, but we believe it to be very generally true, that inflammations of deep-seated organs are extensions of the inflammations of surfaces. How frequently have we seen cystitis and nephritis following gonorrhœa or stricture; and who, at the present day, will contend that orchitis is other than an extension of a blennorrhagic inflammation? We had hoped, however, that M. Lallemand would have afforded some direct evidence that urethritis is the most usual cause of spermatorrhœa. We cannot think that tenderness about the prostatic portion, experienced during the introduction of a catheter, or even the successful result of treatment, are sufficient proofs of this important pathological position. We are not told whether the urine is usually albuminous in those cases: in acute urethritis we have constantly found it to be so. In chronic urethritis the urine is always more or less purulent. Neither the chemical nor microscopical descriptions of the urine afforded by M. Lallemand, are to our minds satisfactory.

If it be admitted that a condition of irritation, existing at the neck of the bladder, and in the prostatic portion of the mucous membrane of the urethra, be the immediate cause of spermatorrhœa, it will not be difficult to understand in what manner gonorrhœa gives rise to this disease. That true inflammation often complicates the specific catarrh of gonorrhœa, we have frequently had occasion to verify. We have often ascertained the urine to be albuminous in this disease, in cases where precautions were taken to prevent the admixture of pus, which

necessarily accompanies the first gush during its discharge: and we can well comprehend how the injudicious employment of balsamic medicines might permanently prolong this inflammatory condition. Under such circumstances inflammation may either creep along the ejaculatory passages, or the glandular structure of the testes may be stimulated to increased secretion, just as the saliva flows when we chew orange-peel. The following observations of M. Lallemand are judicious:

“Anti-venereal treatment is frequently also employed in patients who have suffered merely from blennorrhagia, and in a very numerous class of cases it produces a serious increase of the irritation in the genital organs, and causes the appearance, or exasperates the effects of involuntary spermatic discharges. Cases of this nature often present considerable difficulties of diagnosis; and the solution of these obscurities is always of much importance in determining the treatment to be followed. Anti-venereals are not the only therapeutic agents which produce such unfortunate effects; those which a blind routine of practice employs in cases of blennorrhagia have not been less injurious; among these it is especially necessary for me to mention astringent injections, copaiba, cubebs, tonics, and bitters, employed too soon, or in extreme doses. All these means act more or less by exciting the genito-urinary organs; it is therefore easy to understand that their untimely or immoderate use must favour an extension of the inflammation from the urethra to the mucous membranes, which are continuous with it. I am far, however, from wishing to proscribe the use of those remedies, and I willingly bear testimony to their beneficial effects, after the inflammatory symptoms have been subdued. A time arrives when the mucous membrane of the urethra, like all other membranes of the same class, requires the employment of tonics and astringents; but in the way they are daily prescribed, I am convinced more harm than good results from their use.”

In corroboration of M. Lallemand's views, we have long satisfied ourselves that physicians form too confined a notion of the effects of mercury, in limiting the physiological action of this mineral to the salivary glands; we have not the slightest doubt but that it at the same time acts as a powerful stimulus on other glandular organs; we have often known it to cause the urine to become neutral or even alkaline, and we can see no reason why it should not act as a stimulus on the testes.

In all the cases of spermatorrhœa following blennorrhagia, related by M. Lallemand, the urethra retained an excessive irritability, especially in the prostatic region; the patients felt constant pain, weight, heat, darting, or painful tickling in this situation; and those sensations were increased by the passage

of urine. Catheterism, though performed carefully, always produced acute pain and spasm, sometimes sufficiently violent to simulate stricture.

A few of the patients experienced symptoms indicating an affection of the prostate, such as swelling of the organ, sense of weight in the rectum and perinæum, darting pains in the neck of the bladder, behind the pubes, &c., and in one case the inflammation of the prostate ended in suppuration. In many cases the testicles were swollen, inflamed, and painful. The spermatic cords also shared the condition of the testicles. In some patients the seminal emissions contained blood or pus. The semen is not only expelled involuntarily, but M. Lallemand supposes that it must be secreted in greater abundance, in order to account for the great frequency of its emission, and the weakening and exhaustion that so rapidly proceed.

M. Lallemand gives several cases of spermatorrhœa, which he believes to have arisen from a metastasis of a cutaneous eruption. He says:

“We should think twice before we pronounce on the nature of an urethral discharge occurring in a person subject to cutaneous eruptions, especially when their suppression has previously been followed by inflammation of some other mucous membrane. Yet we must always bear in mind that those persons are liable, in common with the rest of mankind, to the occurrence of blennorrhagia, which would even put on, in their particular cases, greater virulence than usual, and must therefore greatly increase the predisposition of persons subject to cutaneous diseases to suffer from spermatorrhœa.”

That constipation, ascarides, and other causes of compression and irritation in the rectum, should produce evidences of irritation in the urinary and genital organs, need not surprise us. We have known the urine to become purulent in cases of enteritis and uterine disease, in which it was manifest that a low form of inflammation had spread from neighbouring organs to the mucous membrane lining the ureters or bladder. We can, therefore, easily understand that a long continued pelvic irritation may in predisposed cases give rise to urethral discharge or spermatorrhœa. M. Lallemand describes several such; and he conceives that he has proved that affections of the rectum may excite involuntary emissions; first, mechanically, by compressing the seminal vesicles during the passage of fæces; secondly, vitally, by the extension of irritation from the rectum to the seminal vesicles.

It cannot be denied that the habit of self-abuse is the most frequent, as it is the most degrading, cause of spermatorrhœa. It is with pain that the physician is forced, by a consciousness

of duty, to make himself acquainted with the revolting details of this disgusting propensity. Fortunately, in Ireland, we have not the consequences of this vice amongst the female sex obtruded upon us. We have had abundant opportunities for ascertaining that masturbation must, at the utmost, be very rare amongst females in this country. Devergie's work on legal medicine informs us, in an unequivocal manner, that such is not the case in other lands. Amongst boys, however, we fear that the habit of self-abuse is as common here as elsewhere, and in practice we not unfrequently meet with its sad consequences.

The forms of abuse are, however, very various. Lallemand mentions a case in which it was practised by the individual suspending himself from an elevated support by the arms. In other instances it is brought on by horse exercise. We have known an instance in which it was produced by sliding down a balustrade. The ill effects appear to occur in two distinct ways: first, by the weakening effects of the losses occasioned; secondly, by the state of nervous excitement brought on. That similar causes of excitement may produce similar effects is shewn by a case related by Deslandes, in which a child brought on a bad state of health, with symptoms analogous to those of spermatorrhœa, by tickling his navel, although no evidences of genital irritation were exhibited.

Abandoning the habit of abuse will not always restore the health. Lallemand explains this, by supposing that in these cases a low form of urethral and genital inflammation has become established, giving rise to diurnal and unconscious pollutions. Those may assume the form of a gleet discharge, either constant or remitting; or they may be solely recognisable by an examination of the urine, the secretion constantly flowing back into the bladder. Lastly, it may be remarked that few patients contract spermatorrhœa from any other cause, who have not become predisposed to it by habits of self-abuse.

We shall now direct the attention of our readers to the symptoms of spermatorrhœa. Among these the most important are the involuntary emissions, which may occur either during sleep or wakefulness. Those which happen during sleep may not be injurious,—they may even, under certain circumstances, be serviceable,—and are sometimes, in case of true spermatorrhœa, evidences of returning health. M. Lallemand thinks that the injurious or other effects of nocturnal emissions may in some measure be judged of by the nature of the patient's dreams, whether pleasurable or otherwise. Diurnal pollutions are injurious in proportion to the absence of sensation; those which escape without the consciousness of the patient

are followed by the greatest debility. When the escape takes place with the urine, and without any sensation except that of pain or scalding in the act of micturition, the worst consequences are to be apprehended. According as the disease persists, the appearances presented by the urine vary. If, as not unfrequently happens, nephritis or cystitis should complicate the genital lesions, the urine will present the usual phenomena of those diseases. In the former case it will be scanty, neutral, and, perhaps, sanguinolent; in the latter, albuminous or purulent, in proportion to the sthenic character of the inflammation. Whether complicated or not with these inflammations, the urine may contain spermatozoæ, dead, more or less altered in form, and lying at the bottom of the vessel. As the disease progresses the spermatozoæ become more difficultly recognizable; they appear less perfectly developed, and at length are no longer capable of being detected. According as the spermatozoæ cease, M. Lallemand describes another appearance which becomes more remarkable with the persistence of the disease,—the appearance of a light cloud studded with brilliant points, and little gelatinous masses, like rice or millet grains, which subside to the lower part of the vessel, but re-ascend by slight agitation. M. Lallemand says that he has found a similar matter in the seminal vesicles; he considers it to be a secretion from the lining membrane of these bodies, which increases in disease to a true catarrh.

We are surprised that, in treating of the general symptoms of spermatorrhœa, M. Lallemand has neglected to describe those which proceed from a deficiency of the red globules. In our experience, symptoms of chlorosis are among the very first which present themselves; and when we see a young lad getting pale, and find a *bruit de diable* in his cervical region, we are always led to suspect, if no hæmorrhage has taken place, that he has acquired bad habits. M. Lallemand describes cases in which the disorders of circulation led to the erroneous diagnosis of cardiac disease; but, although he detected the error, he does not appear to have ascertained the cause.

The most remarkable and frequent of the general symptoms connected with spermatorrhœa are those connected with the nervous system. Diminution of intelligence is in most cases perceptible; this may prevail as far as dementia on the one hand, or melancholia on the other. Thus many of the cases described considered themselves to be pursued by enemies, and sometimes believed themselves to be suspected of unnatural crimes. These hallucinations sometimes end in suicide. As regards the senses, alterations the most opposite

occur in different cases. Thus, sometimes there is intolerance of light; on other occasions amaurosis, more or less complete. Lallemand finds the sensation of formication described by Hippocrates to be much less general than the description of the distinguished Grecian would lead us to suppose. With respect to the muscular system, there may be either spasms and convulsions or paralysis. Probably, in connexion with the altered innervation produced by spermatorrhœa is the obstinate dyspepsia which torments the greater number of these patients. Nutrition is not always interfered with, many persons who have become impotent through the long persistence of this flux, retaining their good looks and muscular development. We shall not dwell on the well-known symptoms of spermatorrhœa,—the downcast eye, the tendency to stammering, the solitary habits, and dislike of female society, &c.

In the treatment of involuntary seminal discharges it is of less consequence to seek their primary than to discover their maintaining cause. For instance, pollutions may have been primarily excited by masturbation or venereal excesses, and afterwards be kept up by affections of the skin, hæmorrhoids, &c. In such cases it is evident that the practitioner must treat the existing cause. Involuntary discharges may either arise from actual debility or relaxation of the spermatic organs, or from a state of irritation or chronic inflammation of the parts, after having been first produced by very different remote causes: in treating such cases, then, the remote causes are not to be considered, while too much importance cannot be attached to the actual condition which keeps up the disease. "It is," says M. Lallemand, "this *actual* condition of the spermatic organs that must be altered in order to obtain a cure."

When the emissions are kept up by the presence of ascarides in the rectum, it is an object to employ such means as will remove the entozoa without irritating the mucous membrane. Injections of water, at first tepid, and finally cold, may effect this object; oily injections are also useful; and a small quantity of the *unguentum hydrargyri mitius*, if introduced into the rectum, will often give immediate, although only temporary relief.

In cases of pollution excited by cutaneous eruptions, M. Lallemand has found great benefit from the employment of baths of either the natural or artificial sulphuretted waters. In eruptions about the anus, there is no remedy equal to ascending douches, especially where the disease extends to the mucous lining of the gut. In emissions depending on debility or relaxation, galvanism, cold bathing, tonics, especially chalybeates,

have all been found useful. But the cases that are the most obstinate, as well as the most likely to escape the observation of the medical attendant, are those in which involuntary diurnal emissions are kept up by a chronic or subacute inflammation of the mucous membrane lining the prostatic portion of the urethra. The advice given by Hippocrates is manifestly better adapted to cases of this description than to those of an atonic kind. He recommends that the patients should be fomented over the whole surface, that lavements should be given, and, after a time, tepid baths used. After having prepared the stomach by a mild emetic, he recommends skimmed milk as a beverage, asses' milk, and, during forty days, cow's milk. "So long as this milk diet shall continue," he adds, "administer barley-water in the evening, and forbid all solid food; afterwards give soft food, in small quantities at first, and fatten the patient as much as possible." He further states that wine should be abstained from during a year. All these directions shew that Hippocrates did not consider *tabes dorsalis* as a disease of atony, but rather one of irritation and excitement; and M. Lallemand's experience tells him that his advice is the best possible to follow in the great majority of cases. In addition, he has found that in the milder cases the introduction of a catheter may be sufficient, as in cases of morbid sensibility, to modify the condition of the mucous membrane.

The remedy which, in severe cases, M. Lallemand has found most useful, is cauterization of the mucous membrane of the prostatic portion of the urethra, by means of the nitrate of silver. This is a very severe operation, but is, in many cases, the only known means of cure, and in the majority it is very successful, according to the testimony of many of the most eminent of the French surgeons. We shall conclude our notice of M. Lallemand's work, by mentioning the directions which he gives for the performance of this operation. Before proceeding to cauterization, it is indispensably necessary to introduce a catheter, for the double purpose of taking the exact length of the urethra, and of completely emptying the bladder. By carefully withdrawing the instrument while the stream is passing, the sudden cessation of the latter will point out the moment when the eye of the catheter has entered the neck of the bladder, and the distance of the eye from the orifice of the urethra can then be easily marked on the catheter. After the removal of the instrument, the length of the urethra, as indicated by the distance of the mark from the eye, can be measured on the *porte-caustique*, and thus, the operator will be enabled to ascer-

tain when the end of the instrument has reached the neck of the bladder. This is a point of considerable importance. The bladder must be completely emptied, in order that no urine may penetrate into the tube of the *porte-caustique*, and that none may enter the urethra during cauterization.

The *porte-caustique* consists of a tube enclosing a stem at the extremity of which is a cuvette, which is hollowed for containing the caustic. The latter is to be melted into the cuvette by means of a spirit lamp. It may be made of silver or platinum, but no soldering should be permitted, as this is apt to be acted upon by the caustic. The patient should lie down during cauterization. When the extremity of the instrument approaches the neck of the bladder, the irritability of the passage increases, and the patient's agitation often becomes so great as to inconvenience the operator. As soon as the extremity has entered the neck of the bladder, the instrument should be a little withdrawn, and then the tube being for a short distance drawn back on the stem, the cuvette should by means of the latter be *very rapidly* passed over the surface of the prostate. The instrument should then be *instantly* closed, and slowly withdrawn from the urethra. It must be remembered that cauterization is practised, in these cases, in order to bring on a lasting change in the condition of the tissues by means of active inflammation, and not for the purpose of causing loss of substance; and hence it is not necessary to produce a slough. The action of the nitrate of silver should be just as rapid as in cauterizing the conjunctiva in chronic inflammation, ulceration of the cornea, &c. There is the same intention in both these different cases, and the result obtained is of the same nature.

M. Lallemand states that he has been in the almost daily habit of cauterizing the urethra for twenty years; and that he has never seen, in his own practice, any of the violent effects, such as retention of urine, hæmorrhage, long-continued violent pains, narrowing of the passage, &c., described by some operators. He should indeed almost doubt the accuracy of these descriptions, had he not been consulted in some cases in which these symptoms had been set up. But he ascribes these ill effects as resulting from the application of the caustic being too long continued, instead of consisting in a rapid touch. He likewise reprobates the practice of too frequent cauterizations.

Before concluding we may mention that M. Lallemand recognises the frequent coexistence of spermatorrhœa and dia-

betes. This connexion, as well as the frequent connexion of amaurosis with spermatorrhœa, was, we believe, first pointed out by Dr. Cane, of Kilkenny, in the former Series of this Journal.

We cannot very much praise Mr. M'Dougall's translation; and we are the less inclined to do so, inasmuch as he very coolly tells us in his preface, that he has "endeavoured more to render the sense of the author in as few words as possible, than to give a full and literal translation." Now, we certainly consider this to be a very unwarrantable liberty with a living author.

Handbuch der Pathologie und Therapie. Von Dr. C. A. WUNDERLICH. In drei Bänden. Stuttgart, 1846-7.

A Manual of Pathology and Therapeutics. By Dr. C. A. WUNDERLICH, Professor of Medicine and Chief of the Medical Clinique at Tübingen. 3 Vols. large 8vo. Stuttgart, 1846-7.

WHEN noticing Dr. Canstatt's voluminous and truly encyclopedical work in our former series(a), we could not help remarking how unsuitable was the title of "Manual" he had affixed to it. The same observation is nearly equally applicable to Dr. Wunderlich's Manual, which, if it had been produced in this country, would, we imagine, from the minuteness of its details, and the numberless authorities and opinions therein quoted and criticised, be considered worthy of being dignified by a name of greater pretensions. The work, although German, is written in a clear and concise style, and the research it exhibits is very creditable to the author, who is evidently a man of sense and a good observer. In saying this, we vouch for no more than his general accuracy, for in some points, as will appear subsequently, we hold opinions very different from his. The space allotted to us will not at present allow of our noticing in detail more than that portion of the third volume devoted to the affections of the respiratory organs.

This subject the author commences by a lengthened and accurate history of the natural conditions of the lungs, air passages, and chest, at all ages, from foetal to adult life, as well as of the frequent deviations of the thorax from the healthy and normal standard, which depend on the constitution, sex, muscular development, occupation, expansion of the lungs, the

(a) Vol. xxvi. p. 99.

state of the abdominal viscera, or individual peculiarities,—considerations which, in our opinion, should never be omitted in any systematic work on the subject.

Passing over his general remarks (occupying upwards of fifty pages) on the history, etiology, pathogeny, symptomatology, diagnosis, and therapeutics of diseases of the respiratory organs, we shall proceed to his special description of one or two diseases of much interest, and for our knowledge of which we are partly indebted to original German investigation. Under the head of motory affections of the glottis, we find two forms of spasm of the glottis ascribed to children.

1. The acute form, *Asthma Millari*, *Asthma acutum periodicum*, *Pseudocroup*, *Laryngitis stridulosa*, *Laryngismus stridulus*, &c.

2. The chronic form, *Asthma Koppii*, *Asthma Thymicum*, *Laryngismus stridulus*.

This division we cannot help thinking unfortunate, as it is not likely to give us clearer ideas on a subject about which there has been but too great a confusion of terms. The *acute form* described by the professor turns out to be nothing else than spasmodic croup, though, curiously enough, he seems to think they are different affections. It attacks, he says, children aged between one and a half and nine years, the male sex especially; it is either sporadic, or prevails during epidemics of croup, and is produced by sudden transition from warmth to cold, or exposure to the north wind. There are often premonitory symptoms, slight catarrh of the nasal passages and larynx, and febrile movements.

“The first attack comes on at night: after the child has been some hours asleep, it awakes suddenly in great distress with dyspnœa. Inspiration is accompanied with a peculiar shrill sound, owing to the narrowing of the glottis; the voice sometimes is completely gone, and there is a *hoarse cough*. The face is first red, afterwards bluish; the veins swollen; the pulse small and *frequent*. After a few moments the spasm disappears, occasionally by vomiting, the child is then exhausted, and falls asleep again. After a longer or shorter respite, sometimes on the same night, or following day or night, a second attack comes on.

“The future attacks may diminish in severity, or the disease may pass into an exudatory affection (croup), with sibilant respiration, hoarse, barking cough, permanent hoarseness of voice, and dyspnœa, with occasional exacerbations, when active fever sets in, and its advanced stage cannot be distinguished from croup.”

The wonder, indeed, would be that it could be so distinguished, as the Professor's description is a perfect delineation.

tion of croup, on which it is very incorrect to bestow the names Millar's asthma and Laryngismus stridulus, these being commonly used to designate the true spasm of the glottis, which is essentially a spasmodic affection, is never accompanied by cough, or associated with inflammation of the air passages.

The last-named affection, described by the author as the *chronic form* of spasm of the glottis, may be found, he says, in connexion with enlargement of the thymus gland,—an open state of the foramen ovale, and of the ductus Botalli,—degeneration of the glands of the neck, and of the bronchi,—alterations in the central parts of the nervous system, more particularly in the brain, which may be in a state of hyperæmia, of softening, or of hypertrophy,—subarachnoid effusions of serum in the ventricles,—large fontanelles, with thinning and softening of the occipital bone,—alterations in the lungs, such as caverns and hepatization; or these organs may be congested as in cases of death by suffocation, and filled with dark blood, or a small portion of the lung may be found compressed by the enlarged thymus.

From all this it results, that, in this disease, no morbid alteration is constant, and that in many cases no other pathological appearance is discovered but that resulting from death by suffocation. If, then, he proceeds, the disease depends essentially on nervous constriction of the muscles of the glottis, the irritations giving rise to the spasm may originate in these muscles or their nerves; or this may be produced by impressions affecting the motory nervous fibres in their course, or by cerebral influences; or, finally, the irritation may be reflected from the sensitive nerves.

The author thinks that, whatever be the exciting cause of spasm of the glottis, there must be in consequence a tendency to excited action of the upper part of the spinal cord, of that part especially which represents the motory fibres of the glottis.

Although we are much disposed to doubt the opinion that enlarged bronchial glands, or the thymus, are capable of producing spasm of the glottis, which is undoubtedly often present independently of alterations of these parts, we cannot quarrel with our author for enumerating them, in obedience to custom, amongst its exciting causes. We feel ourselves, however, called on to remark, that in the treatment no mention is made of the necessity of attending to the state of the teeth, of the diet, or of the bowels; but we are given in place a list of various anti-spasmodics, narcotics, emetics, &c.,—remedies which, in their proper place, are, no doubt, serviceable, but which cannot replace the gum lancet, or the milk of a healthy nurse.

The author's account of *atelectasis pulmonum* is succinct and good, and he has well shown how it may be distinguished by its pathological anatomy from pneumonia, with which it has been too often confounded:

“The morbid appearances are generally confined to certain unconnected lobules, especially those situated superficially at the posterior and inferior parts of the lungs, and they commonly present a well-defined line of demarcation from the normal and healthy parts. They, besides, appear contracted and depressed, and are of a bluish or brownish red colour; they do not crepitate; they are solid, and sink in water. If the child be not long dead, these portions may generally be fully inflated from the bronchi, and they then assume perfectly the appearance of those parts of the lungs in which respiration had been established. The pleural covering of the affected parts is perfectly smooth, and exhibits no trace of exudation. The pulmonary tissue in the neighbourhood of the atelectastic parts may be in a state of hyperæmia (*état fœtal congestionnel* of Legendre). When the state of atelectasis has continued long, or, in other words, if it be too limited in extent to prejudice life at an early period, or if death be prevented by proper care, then the unexpanded cells commence to adhere together, whereby their future expansion becomes impossible, and the cells cannot be artificially inflated even after death. Traces of atelectasis may be discovered even in after years, but such children as remain thus affected are more or less puny, are readily seized with congestion of the lungs and catarrhs, and they succumb to these in greater numbers than others.

In atelectasis the fœtal openings of the heart are still unclosed. An entire lung is seldom found in a state of atelectasis. This disease may be mistaken for general weakness, cardial cyanosis, apoplexy of the spinal marrow or brain, or, which is most common, for pneumonia, especially if the parenchyma surrounding the unexpanded lung be hyperæmic. A proper diagnosis from the latter may be secured by attending to the depression of the part in a state of atelectasis: its atrophic condition, the absence of tough fluid contents in it, its being not friable, the possibility of inflating the cells, the absence of false membrane on the pleura, and of infiltration into the bronchial glands, and the absence of fibrinous clots in the heart. Dr. Wunderlich thinks that French writers have very often mistaken atelectasis for lobular pneumonia, and still more generally for that form of it denominated by Rilliet and Barthez *pneumonie mamellonnée*, although Legendre and Baillie evidently go too far in regarding as remains of the fœtal state the disseminated pneumonic centres found in most of the cases of bronchitis of children. As to what De la Berge calls marginal pneumonia, in which the margins of one or more lobes appear uninflated,

brown, solid, and carnified, we agree with the author, that this is nothing but atelectasis. Bronchitis, pneumonia, and phthisis, are subjects the author has treated in an excellent manner; but we must here conclude with an expression of our sense of the great advantage the German student must derive from the study of such an elementary work as this.

The British Record of Obstetric Medicine, Surgery, and Diseases of Women and Children, &c. &c. To which is annexed a Library of rare Obstetric, Medical, and Surgical Monographs, &c. Edited by CHARLES CLAY, M.D. Manchester, Irwin. Published bi-weekly.

WE are happy to see that an English journal, exclusively devoted to midwifery and its allied subjects, the diseases of women and children, has been established. Such has for some time been a desideratum in the periodic medical literature of these countries, not only from the great and increasing extent of this department of the healing art, but also from the fact that, of all classes of the profession, accoucheurs are the most prolific of their literary contributions, and the most industrious in accumulating observations, and recording their experience. For this we think they are deserving of the greatest praise, and furnish an example worthy of being imitated by the other branches of the profession.

Besides original articles upon obstetric matters, and reviews, the "Record" will contain translations of rare and valuable monographs from the ancient and modern languages, and printed copies of manuscripts possessing any peculiar interest or importance. These will be paged separately, so that they can be bound up as independent works. Perhaps one of the most novel features of our new contemporary is the mode of conducting reviews, viz.:—"The author to furnish the work, accompanied with a faithful abstract of all that is material in the work, giving a clear idea of the nature of the same. The Editor reserving his right of comment." We have neither space nor inclination to enter into a discussion upon this point here; we would venture to say this much, however, that Dr. Clay seems to have been too sweeping and too severe in his condemnation of the plan of anonymous reviewing, as generally pursued in the present day; nor is it fair to argue against a system from what is an acknowledged abuse of it.

In the Editorial Address Dr. Clay further informs us that he is firmly resolved to oppose with his utmost energy quackery

in all its branches; and again, in another place, he announces, that "every communication, book, or even advertisement, that is based on quackery, or couched in *unprofessional language*, will be *rejected*." We rejoice to see this manly avowal, and sincerely hope that nothing may ever tempt him to swerve from his resolution. We have at all times given the most uncompromising opposition to charlatanism, under whatsoever name, shape, or guise, it presented itself; and it behoves every man who has the honour and welfare of his profession at heart to do the same. By such a course only can we hope to check its progress, or enlighten the public mind as to its real nature and proper limits.

The "Record" is published twice a month, and the alternate Number is chiefly taken up with the reprints and translations of monographs. Of those which have already appeared, one is the celebrated dissertation of De Graaf, upon the female testes or ovaria. This, which is translated by Dr. Knox from the original edition of 1688, contains an excellent description of the ovaries, and should be carefully studied by every one who is desirous of becoming acquainted with the anatomy and physiology of the female generative organs. We cannot forbear alluding to another of these monographs, namely, that by Fischer on the pelvis of the mammalia. This is prefaced and interspersed with some observations by Professor Autenrieth, and both together form a most admirable paper, full of instruction and interest, as well to the practitioner as to the lecturer.

This brief notice will, we trust, be sufficient to enable the reader to form a pretty accurate opinion of the general nature and character of this well-timed and useful publication. From what has been already said it will be seen that we approve of its design, and think that its Editor and proprietor, Dr. Charles Clay, is justly entitled to the thanks of the British medical community for so valuable an addition to our periodic literature. We heartily wish him every success in his laudable undertaking, and hope that the service he has rendered obstetric science may be duly appreciated and acknowledged.

Urinary Deposits, their Diagnosis, Pathology, and Therapeutical Indications. BY GOLDING BIRD, M. D. Second Edition. London, Churchill. 1846.

A Guide to the Examination of the Urine in Health and Disease. For the Use of Students. By ALFRED MARKWICK, &c. London, Churchill. pp. 155.

WE are rejoiced that public appreciation, justly merited, has rendered necessary the publication of a second edition of Dr. Golding Bird's work on urinary deposits. In our notice of the first edition in our former Series, little more than two years since, we prognosticated the success which it has since attained; and the rapid progress which urinary pathology has, even during this short interval, achieved, will, we feel convinced, secure a similar welcome for this edition, from the profession in Great Britain and America. We have compared the present publication with the former edition, and find many important sections nearly re-written. There are added also several illustrative woodcuts, which, we have no doubt, will be found very serviceable; and in every respect we feel much pleased at the rapid re-appearance of what we can scarcely, with propriety, call our *old* favourite.

Mr. Markwick's little book will be found very useful by the class for whom it was intended. Like all uncritical compilations, it is subject to certain defects, for when the opinions of many persons differing in education, talents, and opportunities, are indiscriminately placed in a catalogue, there must, of necessity, be in such a work a want of congruity and distinctness. This want becomes singularly manifest when the opinions offered by the same individual, at different periods of his progress in knowledge, are compared. Thus we are told in one paragraph, that Liebig accounts for the production of hippuric acid, under certain circumstances, by the reaction of benzoic acid on the *elements* of lactate of urea; and in the very next sentence we are informed that the presence of *lactic acid* and its compounds in the urine has been disproved by Liebig. The fact is, that the Baron had not discovered the latter fact at the time he penned the former explanation. But, although Mr. Markwick's book is not devoid of the defects which belong to all works of the kind, yet it is evidently compiled with considerable care and industry, and will be found to contain a great quantity of well-arranged information, by those who cannot afford to purchase more expensive works on the subject.

The Philosophy of animated Nature; or the Laws and Action of the Nervous System. By G. CALVERT HOLLAND, M. D., &c. London, Churchill. 1848. 8vo. pp. 512.

DR. CALVERT HOLLAND has written a book, under the above title, in which he advances opinions somewhat peculiar to himself. He does not appear to have a high opinion of the authors who have preceded him in the attempt to discover nervous function. He states that Muller's objections to the hypothesis of nervous circulation "do not exhibit an enlarged view of the operations of the nervous system."—p. 189. Speaking of certain deductions of Dr. Marshall Hall, he considers them to be "characteristic of the mind of this physiologist. He abhors the broad path of scientific inquiry, and rarely grasps a principle in its comprehensive relations. The field which he surveys is always exceedingly limited, and he never rises from particulars to enlarged philosophical views."—p. 251. As to Sir Charles Bell, "his views in reference to the varied indications of the passions are scarcely worthy of the genius which established important distinctions in the properties of the nervous system. They do not display a comprehensive grasp of mind, or a power capable of tracing the relations of the diversified phenomena which fell under observation."—p. 326.

Lord Brougham comes in for his share. He is quoted as a "remarkable illustration of the truth, that if the mind, in its ambitious efforts, endeavours to embrace the vast and ever-widening field of science, of the arts, and of literature, it must necessarily, in proportion to the extension of its powers, skim the surface of each, rather than fathom the inexhaustible riches which lie hid in their depths."—p. 396.

Besides such chance shots as the foregoing, Dr. Calvert Holland occasionally indulges in general onslaughts, such as the following:

"Men distinguished by anatomical attainments, and engaged in the active duties of the medical profession, save where the dexterous use of the scalpel, or the educated touch, is brought into play, have the most limited resources at command in cases of difficulty. They are familiar with the animal system in detached or fragmentary portions, but when the functions of life present themselves in aggravated or unnatural conditions, they have not the necessary grasp of intellect to analyse and separate these into simpler forms, to educe order out of seeming confusion, or, in other words, to give to each phenomenon its just value."—p. 336.

It will be seen that modesty is not Dr. Calvert Holland's forte. He says his views "are adverse to all prevailing doctrines on the action of the nervous system, and feeling at every step of the inquiry, that if the soil which we have presumed to turn up is not altogether new, the riches with which it is pregnant are, for the first time, contemplated in their natural and comprehensive relations to the animal economy, we have brought to bear upon the subject the combined energies of the mind. No previous writer has taken the same enlarged views of nervous phenomena."—p. 425.

Next to his own discoveries, in Dr. Calvert Holland's esteem, are the mysteries of mesmerism and phrenology. Of the former he says:

"The facts which we shall adduce in corroboration of the existence of a nervous principle are numerous and incontrovertible. They are easy of demonstration, and the power of proof is in the hands of all. We allude to the influence of mesmerism."—p. 153.

Emboldened by this statement, we laboriously sought for the facts alluded to, but could only discover two, which we present to our readers:

"In touching Firmness, which was very largely developed in the head of a female, we invariably excited combative qualities to a most extraordinary extent. The organ after a time became so exceedingly sensitive, that if we offered to touch it when she was conscious she begged we would not, as she could not avoid striking, and such indeed was the fact. The force and suddenness of the blow, and the straight line in which it was delivered, were indeed remarkable."—p. 156.

We think the assault perfectly justifiable. What right had Dr. Calvert Holland to be eternally handling her Firmness? The other fact is the following:

"We have tested the attractive power on one in a sound and natural sleep, and the effect was to raise gradually the whole body from its recumbent position, which it resumed on a contrary movement of the hand. This case affords a striking illustration of the existence and influence of a nervous fluid. Not wishing the individual operated upon to know anything of the experiment, we retired, after a very imperfect demesmerization, before consciousness had fully returned, consequently leaving to some extent the effects of the power which had been excited. She was exceedingly susceptible of mesmeric influence."—p. 164.

Now we really cannot comprehend what brought Dr. Cal-

vert Holland into the girl's room to try his attractive powers, and leave her half asleep in the suspicious manner that he has himself described.

We cannot leave Dr. Calvert Holland without presenting to our readers his description of the Irish, or, as he calls them, "the degraded and grovelling millions of the sister kingdom:"

"The dull and inanimate eye,—the heavy features,—the open mouth,—the drooping head,—and a step as destitute of grace as it is of motion, form a picture which all can recognise."—p. 303.

We shall conclude with one other extract from this book, which we think peculiarly applicable to Dr. Calvert Holland himself:

"The bustling importance of vanity inflated with trifles is one of the most disagreeable objects in nature, combined, as it frequently is, with impertinence and ignorance."—p. 338.

We need say no more.

Introduction to Zoology, for the Use of Schools. By ROBERT PATTERSON, Vice-President of the Natural History and Philosophical Society of Belfast. Part II. Vertebrate Animals, with upwards of 160 Illustrations. London, Simpkin, Marshall, & Co. 1848. 12mo. pp. 476.

Elements of Natural History, for the Use of Schools and young Persons; comprising the Principles of Classification, interspersed with amusing and instructive original Accounts of the most remarkable Animals. By Mrs. R. LEE. Illustrated by Engravings on Wood. London, Longman and Co. 1844. 8vo. pp. 458.

WE have long thought that Natural History was a study peculiarly fitted for the years of childhood;—not that it does not comprehend much with which the highest intellect will find difficulty in coping. We do not expect that a child can ever master the philosophical part of this interesting department of science;—how few grown men are capable of doing so! But of the facts on which Natural History is founded, there are few that a young child cannot comprehend, and the study and remembrance of those facts are particularly calculated to assist its education. Education,—how vague is the general interpretation of this much misunderstood, although important word! We mean by it the cultivation of the natural properties of the mind in its usual process of development. Know-

ledge is not the end of education ; it is the improvement of the natural faculties in activity and applicability. To educate the mind we must understand the growth of the mind. First, Memory, then Imagination, lastly Reason ; this is the progress of mental development ; and if we desire to educate, we must cultivate these attributes according as they successively present themselves. Childhood is the period when organization of the senses and spiritual memory are in their greatest vigour. That is, therefore, the time for their cultivation. Natural History is peculiarly the science of sense and of memory. It and language are the two subjects to which childhood naturally cleaves. The scent, the hue, and form of flowers, the habits, appearance, and disposition of animals, strike on the mind, at this period of existence, with a force which they never afterwards exert. This is a link which connects the child with the first man, to whom all living creatures were presented, that he might name them.

It is with great pleasure that we again meet our friend Mr. Patterson, and doubly so as the present little volume calls forth nothing to nullify the meed of praise with which it was our pleasing duty some months since to greet the appearance of the first part of the work, now so successfully completed.

As the former part was entirely devoted to the invertebrate classes, the animals referable to the vertebrate type of structure are made the exclusive subject of the present, and, we think, with just as much success.

If there be one quality more than another which we would select as characteristic of Mr. Patterson's educational writings, we would certainly take his felicitous combination of the popular with the scientific. In the little work now before us the reader is made acquainted with most of the important truths constituting the present state of zoological science, and all this is brought before him in such a way as to be received by the least exercised capacity. With a style which is attractive without being too ornate, and sufficiently severe without the repulsive dryness with which scientific treatises are too often hedged in, the "*Zoology for Schools*" forms one of the best books with which we are acquainted for conveying to the young student an adequate knowledge of the animated beings which surround him.

In the treatment of his subject our author adopts the ascending mode. Beginning with the lower forms of animated existence, we are led, step by step, through organisms gradually increasing in complexity, till at last we arrive at the culmi-

nating point of the system,—the highest manifestation of physical development,—the intellectual and moral *Man*.

In the general survey thus taken of the animal creation, the reader is not made acquainted with the forms and habits alone of the various tribes of sentient existence. To *classification*, in accordance with the philosophic principles of modern biology, considerable attention is given; and the *geographical distribution* of animals, so far as established data will allow just conclusions on this point, is by no means overlooked.

Zoological science, however, cannot be restricted within the narrow precincts of the epoch in which we now find ourselves; the past ages of the world have also had their animated tribes; and though these have long since disappeared as living forms from the surface of the earth, they have left behind them in the fossil, into whose rocky tomb the hammer of the geologist has, after countless ages of darkness and silence, once more admitted the light of heaven, unmistakeable records of their strange existence.

Fully aware of the indefinite extension of zoological science into past time, our author has bestowed a due proportion of space upon the palæontological relations of the animal kingdom, and has placed before his readers numerous important facts connected with the ancient fauna of our earth, facts which cannot but prove in the highest degree acceptable. Take, for example, the discovery of the remains of the *Colossochelys Atlas*, the gigantic tortoise of the sub-Himalayan terriaries:

“In the north of India, and from the Sewalik Hills, which form a lower chain of the Himalaya mountains, great numbers of the fossil remains of vertebrated animals were discovered by Dr. Falconer and Major Cautley. Among these were numerous fragments of a gigantic fossil tortoise, which, after their arrival in London, were exhibited at a meeting of the Zoological Society, and are now in the British Museum. From the relative size of the bones, and portions of the shell of this extinct reptile, as compared with the corresponding parts of recent species, it was estimated that the lower shell (*plastron*) had been nine feet four inches long, and the upper shell or buckler (*carapace*) twelve feet three inches; eight feet in diameter, and six feet in height. The foot of the animal when living must have equalled in size that of the largest rhinoceros. The entire length of the tortoise, from the most careful admeasurement, was inferred to have been about eighteen feet, and its height more than seven.

“These remains were collected during a period of eight or nine

years, along a range of eighty miles of hilly country. From the circumstances under which they were met with, in crushed fragments, contained in elevated strata which have undergone considerable disturbance, no perfect 'shell,' nor anything approaching to a complete skeleton, was found. In 1835, when the first of these fossil remains were discovered, there was no record of any colossal reptiles of this order ; and it became a question, 'To what animal could these enormous bones have belonged?' Vain, for a long time, was all research and all conjecture; the problem was still unsolved, and the interest attached to its solution continued daily to increase. At length a small land tortoise furnished to the investigators the data for its solution. One of its diminutive leg bones resembled in form one of the immense fossils. And, as in the 'Castle of Otranto,' the helmet which filled the court-yard, the gigantic foot, the colossal hand, and the sword which required a hundred men to carry it, were all associated together,—so, when the creature which had borne this ponderous fossil had been discovered, the mystery was revealed, and no difficulty was felt in assigning to every other bone its proper place."

Mrs. Lee's book, the second work at the head of this article, is admirably adapted for the purpose for which it was intended. We prize it as the production of an accomplished lady ; its style is easy, and the information it contains most valuable ; and, as might be expected from the reputation of the authoress, full of truth more fascinating than fiction.

Chloroform in the Practice of Midwifery. By ED. W. MURPHY, M. D., Professor of Midwifery, University College. London, Taylor and Walton. 1848. 8vo. pp. 28.

THE greatest event in modern surgery is undoubtedly the discovery of agents having the power of suspending sensation, without injury to life, during an operation. It required more courage to exhibit these agents in obstetric practice ; and the credit of first using ether belongs to Professor Simpson, of Edinburgh. He has the further, and perhaps higher merit of discovering a new anæsthetic agent of greater power than ether, and attended with fewer disadvantages. We allude, of course, to chloroform, which, we believe, has now, both in surgery and midwifery, entirely superseded ether. In surgical operations we fancy that a bottle of chloroform finds its place among the usual array of instruments as a matter of course. In the practice of midwifery its progress has not been so rapid, and its use is by no means general. It is progressing, however, and we have no doubt that its employment

in obstetric operations will be nearly as common as in surgical. But before its use is general in ordinary labour, no doubt a considerable time must elapse, many prejudices must be overcome, and some reasonable objections removed. In Edinburgh, the influence of Dr. Simpson's energy has carried all before it; the ladies themselves are its partisans; they *will* have chloroform, and the accoucheur has nothing for it but to administer it. In London it has its advocates, among whom we are glad to find our excellent friend, Professor Murphy; but it has also powerful opponents. In Dublin it has been tried in hospital and in private practice, with somewhat varying results; in some cases, either from the mode of administration, or from the chloroform being inferior, no effects at all have been produced; in others, some inconveniences; but in many cases the results have been most brilliant and satisfactory; and accordingly the profession is divided, part objecting to it, part doubtful, and a third party in favour of it in all cases where no counter-indication exists. We have tried it in six or seven cases with the most favourable results. Natural labour has been shortened and disarmed of its suffering and terror; severe and agonizing operations performed without pain to the patient, and followed by calm sleep, and the operator spared the distress of heart-rending outcry, and at liberty to use his best skill without the usual resistance and distraction. Such has been our experience, and whilst we never press its use in natural labour, we shall never refuse it in proper cases, nor ever neglect it in operations where there are no counter-indications.

The great questions as to chloroform appear to be: first, whether it is right to give it? second, whether it is beneficial? and, third, what are its evil consequences?

The objection to its use, as a matter of right and wrong, is based on the fact that pain and sorrow in childbirth were pronounced as a curse upon the sin of our first parents, and that we have no right to interfere with such a positive judgment. But even waiving the philological dispute so ably settled by Dr. Simpson, those who use this objection forget that there were two other portions of the curse, viz., the necessity of earning our bread by the sweat of our brow, and finally, the penalty of death. Now we hear of no objections against machinery (since Mause Headrigg's time) for the purpose of saving labour; no one thinks of reverting to spade husbandry, even if a spade itself be not an infringement of the curse; and as far as we can see, every one does his best to postpone death, and, if he could, would feel little scruple in banishing it altogether; and what is wrong in the one case *must* be wrong in

the other. But perhaps if the gentlemen who are so willing to dispense with the part of the curse which applies to them could be made to bear the pain and sorrow of childbirth,—of just one labour,—they would change their opinion of the *lawfulness* of chloroform.

That chloroform is beneficial both to the patient and the operator now rests upon some thousands of cases, and may be considered as established. We have abundant testimony that it relieves the pain more or less completely, according to the amount administered, that it relaxes the soft parts, that it diminishes the nervous shock, and that it affords rest after labour is concluded; and in addition, that the absence of outcry, of resistance, and struggles, gives great facility for the successful performance of difficult or delicate operations. Lastly, that the operator is spared the distress or disturbance which are occasionally serious impediments to the exercise of his skill.

The greatest drawback to chloroform, in our opinion, is, that the limits of its use are so undefined, in consequence of the small amount of unfavourable results which have been recorded. We assume that, in common with all other remedies, there must be some cases in which it is improper, some in which it must do injury, nay, some in which so powerful an agent may cause death. And yet there are comparatively so few such cases on record, that in the absence of positive data we are obliged to construct imaginary ones, and perhaps prohibit its use in the very cases best suited for it. For example, it was assumed that, from the effects of ether on the blood, it would be likely to favour the recurrence of hæmorrhage, and therefore should be excluded in any case threatened with such an accident. Now, it is proved that there is ordinarily not a drop more blood lost with chloroform than without it. So it will be with other supposed cases, we doubt not. But at present it is undoubtedly a disadvantage that we do not accurately know in what cases it ought to be prohibited.

Our readers will find the results of Dr. Murphy's experience of chloroform in his pamphlet, and much information besides. It is peculiarly valuable just now, from the enlarged experience and calm judgment of the author, who is as little likely as any one we know to patronize that species of animal called a "hobby."

He observes :

"The influence of chloroform on parturition is, in a practical point of view, our most important consideration ; and as far as his

present experience of this anodyne extends the writer is led to the following conclusions:

- “1st. It does not interfere with the action of the uterus, unless it be given in very large doses, which is never necessary.
- “2nd. It causes a greater relaxation in the passages and perinæum; the mucous secretion from the vagina is also increased.
- “3rd. It subdues the nervous irritation caused by severe pain, and restores nervous energy.
- “4th. It secures the patient perfect repose for some hours after her delivery. These three last effects consequently render an operation much easier to perform, and the recovery of the patient afterwards much more favourable.
- “5th. The order of its effects on the vital functions seems to be—loss of sensation—partial loss of voluntary motion—loss of consciousness—complete loss of voluntary motion—stertorous respiration—loss of involuntary motion—cessation of the action of the uterus—of respiration—of the action of the heart.
- “6th. Its injurious effects, when an ordinary dose is given, seem to depend on constitutional peculiarities, or on improper management. Much excitement about the patient may render her violent. Catalepsy has occurred in some; clonic contractions in others. Some patients are slow in recovering from the effect of a large dose; they remain giddy during the day, and sometimes faint when they stand upright.
- “The writer cannot say whether it hastens the dilatation of the os uteri. In one case where it was given, it did not seem to do so; but he can readily imagine, that when the progress of this stage is retarded by the irritability of the patient, and her dread of pain, chloroform, if prudently administered, would be a most valuable means of removing this interruption to labour.
- “The purity of chloroform is of the last importance. If mixed with alcohol it irritates the skin and excites the patient. At first, this preparation was confounded with chloric ether, which had all the exciting properties of sulphuric ether.
- “In order to test the purity of chloroform, Soubeiran proposes a mixture of equal parts of strong sulphuric acid and water; and when cool, a few drops of chloroform poured into the fluid, ought to sink to the bottom if sufficiently pure for medical use; but if they float on the surface, the chloroform should be rejected.”

We regret much that our limits necessarily prevent our entering into more lengthened detail on this most important and interesting subject; the most important improvement in midwifery—if further experience confirm the past—since Chamberlen’s invention of the forceps.

PART III.

REPORTS, RETROSPECTS, AND SCIENTIFIC INTELLIGENCE.

REPORT

ON THE PROGRESS OF OPHTHALMIC SURGERY, FOR 1847.

With Original Cases and Illustrations.

BY W. R. WILDE, M. R. I. A.

SURGEON TO ST. MARK'S OPHTHALMIC HOSPITAL.

THE only special works upon ophthalmic surgery which we have received since the publication of our last Report, are Mr. Jones's Ophthalmic Medicine and Surgery(*a*); the American edition of Mr. Lawrence's Treatise on the Eye(*b*), with the illustrations, notes, and additions of Dr. Hays, of Philadelphia, making it one of the most complete works of the kind in our language; and M. Desmarres' *Traite des Maladies des Yeux*(*c*). To these we shall refer in the course of this Report.

Of the *National Peculiarities* of the eye we have spoken at some length in our Report last year; and we have not much to add on the present occasion. In Colonel Hamilton's Smith's interesting work on the Natural History of the Human Species we find a plate illustrative of this subject, showing the form of the eye-lids in four different races, with this description:—"Those from Canton northward and westward have the gland of the eye covered by the lid and eye-lash turning over it, which increases to its maximum among the black Kalmucks, whose eyes are turned obliquely downwards more than any other race, and whose skin is not yellow, but

(*a*) A Manual of the Principles and Practice of Ophthalmic Medicine and Surgery. By T. Wharton Jones, Lecturer on Anatomy, Physiology, and Pathology, at the Charing Cross Hospital, &c., &c. London, Churchill. 1847. Small 8vo., plates, pp. 570.

(*b*) A Treatise on Diseases of the Eye, by W. Lawrence, F. R. S., Surgeon Extraordinary to the Queen. A new edition, Edited, with numerous Additions and 167 Illustrations, by Isaac Hays, M. D., Surgeon to Wills' Hospital, Philadelphia. Philadelphia, Lea and Blanchard. 1847. pp. 859.

(*c*) *Traite Theorique et Pratique des Maladies des Yeux*. Paris, 1847. pp. 900.

ashy.”(a) By the gland of the eye we suppose the author means the caruncle. We think the drawings, however, greatly exaggerated, particularly that of the Kirguise, where the internal angle of the upper lid is made to overlap the lower. The obliquity spoken of arises in part from the peculiarity of the orbits, but is chiefly owing to obliquity of the lids, and not to any irregularity of the globes.

CONGENITAL MALFORMATIONS.

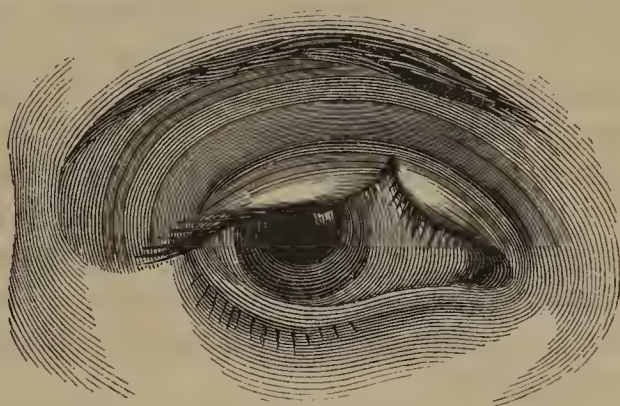
In our articles upon this subject in the twenty-seventh and twenty-eighth volumes of the former series of this Journal, we enumerated among the defects of the lids and ocular appendages, the disease denominated *congenital ptosis*: and also *phymosis*, or congenital narrowing of the rima palpebrarum. During the past year we have had under our care two very remarkable instances of a peculiar modification of this very curious defect, of which the accompanying illustration affords some idea.



Both instances were adults, a male and female, with fair complexions, sandy hair, and blue eyes, and in neither was there any hereditary predisposition to peculiarity of this description. The globes were well formed, and their contents normal, and vision was perfect, though not very strong; but the eyes seemed sunken within deep cavities, and were scarcely touched by the lids. The idea presented to us at first sight was that of a piece of integument, with apertures cut for the eyes, stretched tightly over an osseous preparation, as the globes made little or no prominence externally. The brows were natural, but deeply-arched and elevated, from the action of the frontal muscles, by which alone the palpebræ were elevated. The upper lids were remarkably small, smooth, and totally devoid of folds or furrows, and they appeared nearly flat from side to side, owing to the very slight projection of the globes. They usually covered the upper two-thirds of the corneæ, and consequently a considerable portion of each pupil, which, from the eyes being so much shaded from the light, was generally dilated. By the action of the occipito-frontalis muscle, the lid can be raised so as to uncover about one-third of the cornea. It is manifest that in these cases there is either total deficiency or complete atrophy of the levator palpebræ. The split of the lid is about half the natural size in the full-grown adult; the ciliæ are

natural, but light in colour, and the puncta normal. Without any eversion, both these cases suffered from redness and irritability of the inner edge of the lower lids, for about the depth of the Meibomian glands, owing to the action of the atmosphere upon the mucous surface, which stands out about a line from the surface of the globe. A slight lachrymal effusion generally fills this space. The orbicularis palpebrarum is tolerably well developed, enabling these persons to approximate the lids and close the eyes. From some flattening of the nasal bones and the small palpebral apertures, the eyes at first sight appear to be set too widely apart. Dr. Mackenzie says he has met with "a degree of depression of the upper lid so considerable as to materially impede the function of vision, and which had existed from birth; in some of these cases the lid was the reverse of being swollen; it rather appeared atrophic, as if the levator muscle had either been originally deficient, or had wasted from disease."(a)

Coloboma Palpebræ.—The accompanying illustration affords the best idea of a well-marked case of cleft eyelid which we have yet seen. It is taken from the right eye of a girl aged 14, with dark hair and eyes, none of whose family have had any congenital malformation. The split occurs at the junction of the middle and inner thirds of the lid. In this case we find that there is a complete deficiency in the cartilage, for about a line in breadth, throughout its whole extent; in fact, there are two distinct superior tarsal cartilages, held together by the conjunctiva internally, and the muscles and integuments without. The ciliæ are continuous, but somewhat shorter within the cleft. Upon everting the lid, the split is very manifest, and externally the finger sinks into the deficiency. She experiences no inconvenience from this peculiarity.



A gentleman of our acquaintance has precisely the same peculiar malformation, also in the right eyelid, and in exactly the same place,—the junction between the middle and internal third of the cartilage.

Megalophthalmus, or preternatural enlargement of the globe.—We are indebted to Mr. Fleming for a case of this description which fell under his notice in one of the temporary fever hospitals. The boy, now seventeen years of age, has brown hair, and dark hazel eyes. The right eye is natural in every respect; the left is nearly twice the size of the right, and very defective in vision, but perfectly natural, and to all appearance healthy in its coats and hu-

(a) Mackenzie on the Eye, third edition, p. 181.

mours. From all its parts being in proportion to one another, it presents one of the best instances of pure buphthalmia, or congenitally enlarged eye, which we have yet seen or read of. The pupil is perfectly sensible to light, and the lachrymal appendages normal.

A case of the *Congenital Absence of the four Puncta*, in a bar-rister in Paris, aged 25, has been related by M. Blanchet, who has succeeded in establishing a punctum in communication with the lachrymal duct upon the right side(*a*).

Scarcely a year passes that we do not read of cases of opacity of the cornea presenting at birth, and arising either from an arrest of development of this membrane during an early period of foetal life, or the supervention of inflammatory action in it *in utero*, as we have already explained in our second essay upon the malformations and congenital diseases of the organs of sight(*b*). A case of *Corneal Opacity*, apparently the result of the former cause, and accompanied by deficiency of the iris, has been lately recorded by M. Tavignot, in a child eighteen months old. The globes were natural in size, but somewhat too spherical in form. There was convergent strabismus, with nystagmus, in both eyes. The corneæ were natural in size, but the left presented an uniform opacity, except around its sclerotic attachment, where there was a small transparent zone. In the right cornea the opacity occupied about one-third of its extent, and was confined to the centre. There was in this case some approach to that peculiar condition of opacity sometimes seen in middle and advanced life, and to which has been given the name of arcus senilis. The iris was almost totally deficient in both eyes. There was some vision, but considerable photophobia(*c*).

M. Desmarres, in his recently published work upon the eye, has devoted considerable space to the congenital deformities; but his knowledge upon this subject is chiefly derived from the celebrated work of Von Ammon, of Dresden(*d*), and he does not appear to be at all acquainted with the writings of Englishmen who have alluded to these vices of conformation.

Dr. Texon relates three cases of *Irederimia*, or *congenital absence of the iris*. In all there was partial ptosis, or a peculiar drooping of the upper lid, so as to cover a portion of the cornea, and thus act as a shade, like the lids of the chameleon. The bottom of the eye appeared dark brown or black, and in one case, in a strong light, there was seen deep in the eye a brilliant reflection, giving it a luminous red appearance, like a ruby(*e*).

Hereditary Absence of the Iris.—Dr. Stoeber, of Strasbourg, whose researches upon the congenital malformations of the eye we

(*a*) *Gazette Medicale* for 1st May, 1847.

(*b*) The Dublin Journal of Medical Science, vol. xxviii. for 1845, p. 86.

(*c*) *Gazette Medicale* for July 27, 1847.

(*d*) *Klinische Darstellung der Angeborenen Krankheiten*.

(*e*) *Annales d'Oculistique*, January, 1848.

have heretofore had occasion to notice, has lately recorded an instance of iriderima in both the father and son. The child was two months old; the deficiency existed in both eyes. The same deficiency existed in the father, who from this cause was never able to read(*a*).

Mr. France has made a second notice of the case of *Iriderimia* recorded by Mr. Willesford in the fifteenth volume of the London Medical Gazette. The girl, now aged 17, has, it appears, lost vision since her case was originally published; owing, it would seem, to the sensibility of the retina having, by long exposure to too much light, become blunted. Mr. France gives the following statement of her appearance in June last(*b*) :

“The girl’s complexion, as before mentioned, is dark, and the hair, eye-brows, and eye-lashes, which are plentiful, are black. The globes are altogether ill-developed, perhaps two-thirds of the average size for an individual of this patient’s age; they are affected with continual oscillatory motion; the openings of the palpebræ are short, but not disproportionate to the bulk of the eye-balls.

“The cornea of the right eye is much smaller than usual, its centre hazy, and the surface of the hazy part scabrous; the sclerotic, of much less capacity than ordinary, appears otherwise healthy, and possesses a due degree of tension. The iris is totally deficient, except towards the temporal side, where a narrow rudiment of the membrane exists, presenting a diameter of about a line at the broadest part, and extenuating itself to a point at either extremity; it thus constitutes a narrow crescent of light brown colour, the only septum between the chambers of the eye; for, with this exception, the entire space behind the cornea appears uniformly black.

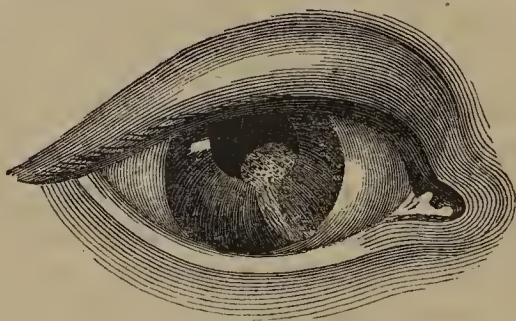
“The cornea of the left eye is very small, with a nebulous centre, where the surface is irregularly flattened. The sclerotic is of corresponding size, but otherwise healthy. In this organ, likewise, the sole vestige of iris consists of a narrow, light brown crescent, confined to the temporal side; and the observer looks uninterruptedly through the remaining space to the dull, black fundus of the eye. In neither globe is there any appearance of cataract; yet in neither are the deeper reflected images of a candle discernible upon catoptrical examination; a circumstance owing, probably, to the irregularity and central haziness of the surface of the cornea. Intolerance of light is by no means considerable in the ordinary uninflamed condition of the eyes; but the patient continues subject to slight attacks of ophthalmia, productive of troublesome photophobia. Vision, which is most imperfect with the left eye, is sufficient to enable the patient to find her way about accustomed places, and to execute a little coarse work; but she cannot thread a needle, or pick up a pin from a light-coloured surface; and at dusk her visual powers are still more deficient. No other member of the family, parent or child, is similarly affected.”

(*a*) *Gazette Medicale de Strasbourg.*

(*b*) *Ophthalmic Cases in Guy’s Hospital Reports*, vol. v., for 1847, p. 30.

Congenital Amblyopia.—The peculiar optical defect which exists in Professor Airy's eye, and which he described in the Cambridge Philosophical Transactions some years ago, under the name of *Astigmatism*, has also occurred in the person of Dr. H. Goode, who has lately written an article on the subject. To remedy this defect it is proposed to use a lens plane on one side, and a section of a cylinder on the other. Glasses of this description are said to be best made by M. Chamblant of Paris, who also constructs lenses suited to Dr. Goode's eye, viz., with cylindrical surfaces, the axes of the two surfaces crossing at right angles(*a*).

Korestenoma.—Von Ammon has applied this term to that peculiar vice of conformation in which there is a preternatural projection of the iris within the circle of the pupil at any one part. It is one of the rarest forms of congenital malformation of the eye. In the fourth volume of that valuable periodical, the Quarterly Journal of Medical Science of Prague, we find an interesting account of a case of this description, by Dr. Victor Szokalski, accompanied by a well-executed illustration, from which the wood-cut here represented is copied. The subject of this malformation was a girl of a scrofulous constitution, born with hare lip, and said to be affected with syphilis. The irides were light blue, and in each iris was observed a light yellow stroke of a conical shape; it arose broad from the border of the pupil, and extended obliquely downwards and inwards to the ciliary margin. In the right eye, however, its upper edge formed a rounded, wart-like protuberance, which projected into the pupil, and occupied about half the size of that aperture in its moderately dilated state, and also extended into the anterior chamber. It was covered with minute hairs. The other parts of the eye were normal. While the ordinary discolouration of the iris, which this resembles, has been accounted for on the belief that it is an early cicatrix of this membrane, no plausible hypothesis has yet been advanced which will explain this peculiar fault in the formation of the ocular diaphragm(*b*).



A case similar to this is reported to have occurred in the practice of the venerable Walther of Munich. The fact of the case related by Dr. Szokalski having been mistaken and treated for syphilitic iritis with lymph effused on the surface and border of the iris is in itself a sufficient proof of the necessity of the profession being made acquainted with all these vices of conformation.

Mr. Allen has lately recorded the case of a cyclops monster, but he has omitted all notice of the dissection of the eye(*c*).

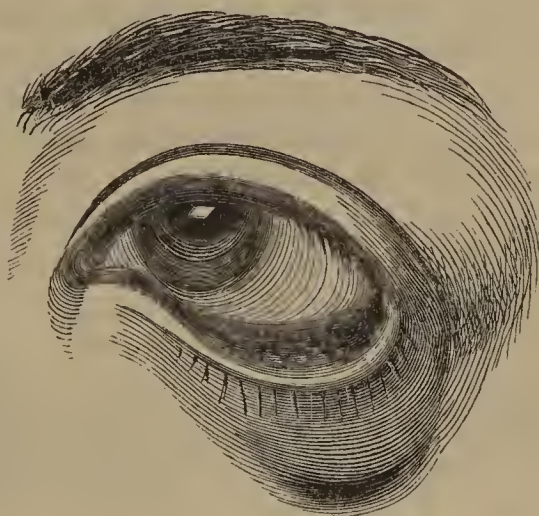
(*a*) Monthly Journal and Retrospect of Medical Science for April, 1848.

(*b*) *Vierteljahrschrift für die praktische Heilkunde* III., Jalugang, 1846. *Vierter Band*. Prag.

(*c*) *Lancet* for February 26, 1848.

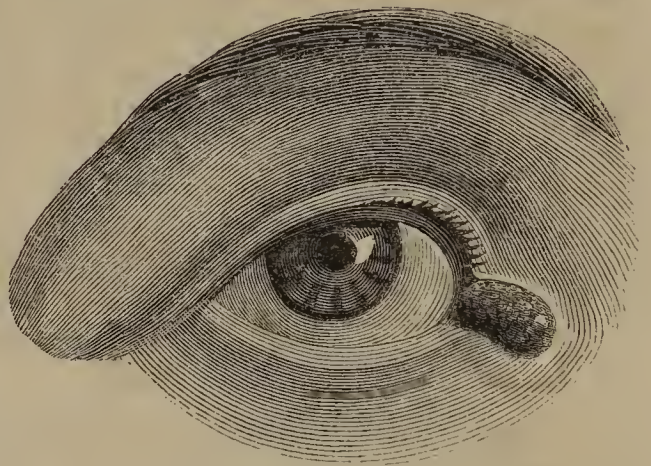
DISEASES OF THE EYE-LIDS AND LACHRYMAL APPENDAGES.

Ectropion.—We have very little to record on this subject. The following case, which we treated in the year 1844, by a new method of operating, possesses sufficient interest for its insertion here. The subject of the deformity represented in the accompanying illustration, a girl aged fourteen years, had a scrofulous abscess over the malar bone, near the edge of the orbit, when about five years of age. A small portion of bone had exfoliated; the integuments became inverted during the subsequent healing process, so that the skin and periosteum were intimately united. By this means the lower lid was drawn down from the globe, and its outer portion greatly everted. The conjunctiva presented the usual red villous appearance which it assumes when thus exposed for any length of time. When first examined we found the integuments so intimately attached to the bone, that it did not seem possible to insert anything between them. For upwards of a fortnight the patient, by our directions, rendered the parts more moveable by drawing the adjoining skin in different directions, so that some cellular membrane seemed thus to have been felted, as it were, between the bone and the thin layer of skin by which it was covered. A small narrow-bladed and double-edged knife, such as that used for the subcutaneous section of tendons, was then introduced at the distance of nearly an inch on the outer side of the cicatrix, passed obliquely down to the bone, then pushed forward to the outer angle of the attachment, at which period of the operation the parts both above and below the cicatrix were made as tense as possible, and stretched forwards, while the point of the knife, its flat surface being laid upon the bone, was moved in a semicircular manner from above downwards, and at the same time pushed forward, until the entire adhesion, and for nearly half an inch on each side of it, was fully detached from the bone. As soon as it was found perfectly free, and that the lid could be restored to its normal position, the knife was withdrawn, and the small wound closed with adhesive plaster. The effusion of blood which immediately took place beneath the cicatrix caused a tumour where the depression had existed, and care was taken that none of this blood should escape through the external aperture. A ligature was then passed through the lower lid, about a quarter of an inch from its ciliary margin, and the ends of it drawn up and attached to the forehead during the next three days. Cold applications were applied, and we had the satisfaction to find that, within a fortnight afterwards, the deformity was completely removed, the depression of the cheek filled up, and the lid



restored to its natural position. The thickened conjunctiva, however, required the application of the sulphate of copper for some time afterwards. At present it is scarcely possible to trace where the deformity existed. This case is not only interesting in itself, but the means by which it was removed afford us a valuable hint in the treatment of similar deformities elsewhere.

Follicular Tumour of the Caruncle.—The accompanying illustration affords a tolerably correct idea of this rare form of disease, which closely resembles benign encanthus. It occurred in a girl aged eighteen years when this drawing was taken, about two years ago. An oblong, fleshy mass occupied the internal angle of the right eye, projected over the commissure, and lay between it and the nose. Upon close examination it was found to be minutely lobulated on its surface; it was not very sensitive

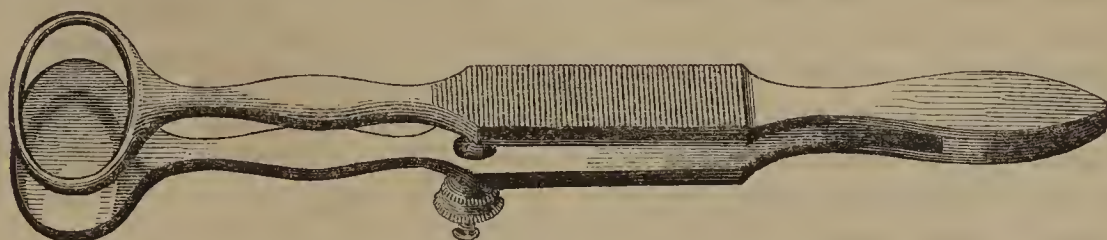


to the touch; and on raising it up and drawing it forward, it was found to be attached both to the lower edge of the caruncle and the conjunctival lining of the inferior lid; but that it was not a mere enlargement of the caruncle itself was manifest, from a portion of that body being distinguishable behind and above it: the second root was situated between the punctum and the extremity of the inner angle of the lids. The tumour was polished on its surface, and totally devoid of hair. The patient stated that the disease had existed for many years, but, except the deformity, gave her very little inconvenience till latterly. It used occasionally to bleed when rubbed, and she says it generally increased in size and depth of colour during the menstrual period. A fine ligature was passed over the tumour, and tightened as far down towards its root as possible, when the tumour assumed a purple colour instead of the bright, florid red which it previously exhibited. After a few hours the tumour was removed with a pair of scissors, at the line of strangulation, and scarcely any hæmorrhage ensued. Upon examination the tumour was found to be chiefly composed of conical eminences, formed of capillary blood-vessels, held together by loose cellular tissue, and covered by an unusually thick layer of epithelium. The resemblance which it presented to the microscopic appearance of condyloma was very remarkable. In the course of a twelvemonth it grew again, and was lately removed.

Anchyloblepharon.—In cases of adhesion of the lid to the globe, M. Dijon passes a lancet-shaped needle across the base of the cicatrix, as deep as possible, but parallel with the margin of the eyelid. Through this aperture he passes a piece of fine silver wire, the extremities of which he joins, and leaves this ring in for fifteen or twenty days, at the end of which time the trajet is free and its sides

cicatrized: he then cuts out the wire. It is found, he says, to answer the purpose perfectly. (a)

Tarsal Tumours.—In our Report for last year we mentioned that Dr. Desmarres had invented an ingenious description of forceps for the removal of tumours from the eye-lids, and we described the mode of using it. We stated, however, our objection to its use,—that it was only applicable to the removal of those little bodies by an external incision, a plan few operators will, we think, now agree to. We have, however, taken the hint from our Parisian contemporary; and had an instrument constructed on precisely the same principle, but modified so as to answer the purpose to which we apply it. It is here represented of the actual size.



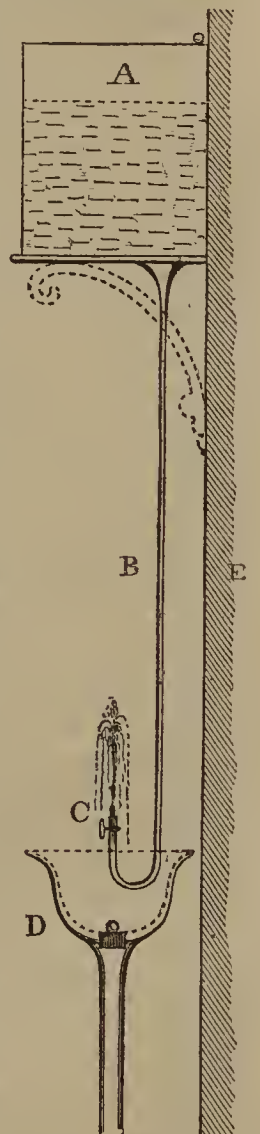
When using it, the ring portion is slipped under the lid, upper or lower, so as to encircle the tumour; the blades are then screwed together with the necessary degree of tightness, and the lid everted. By this means we have the lid fixed,—a perfect tourniquet applied, by which all hæmorrhage is prevented, and, in all probability, pain is lessened, the globe defended, and a point of resistance obtained in the solid blade of the instrument, by which also the tumour is pressed forward. Having opened the sac freely, we turn out its contents into a fine silver spatula, or a Daviell's scoop; then apply a fine probe, pointed with nitrate of silver, over the interior, smear the surface with a little oil, restore the position of the lid, and loosen the forceps. The instrument differs from Desmarres' in the position of the screw, the size and curvature of the blades, and in the mode of its application.

AFFECTIONS OF THE CONJUNCTIVA, CORNEA, AND SCLEROTIC.

Ophthalmia Neonatorum.—In this disease it is said that a new membrane is generated upon the surface of the conjunctiva, in the same manner that adventitious membranes are thrown out on the lining of the larynx, and upon that of the pharynx and isthmus faucium in diphtherite; and this, it is said, is what causes the rapid destruction of the cornea in these cases. The existence of this membrane is yet problematical. The conjunctiva is not prone to effuse lymph upon its external surface, but probably, under certain circumstances, it may do so. A case has lately been recorded by M. Bouyson, in which, during an attack of very severe purulent ophthalmia, a series of pseudo-membranes were formed upon the chymosed conjunctiva, which protruded between the lids; but in this instance the conjunctiva had been previously incised to relieve the distention, and we are not quite sure that the effused membrane was not poured out

(a) *Gazette des Hopitaux* for Dec. 2, 1847.

from the cut surface of the mucous membrane. The lining of the mouth occasionally pours out lymph in large quantities, so does the external surface of the membrana tympani and the distal extremity of the external auditory passage, and it is possible that the mucous membrane of the eye may do so likewise; but the matter requires further investigation. M. Chassaignac, the discoverer of this pseudo-membrane (so called) in purulent ophthalmia, recommends the continual irrigation of the eye, by what he terms *Ocular Douches*, in order to wash away the membrane as often as it is produced. To effect this the child is laid upon a table, while a small stream of water(*a*) is made to play on the eyes, for several minutes together, frequently during the day. This mode of treatment is not so novel as the French surgeon believes. In the Dublin Lying-in Hospital, many years ago, the nurses of certain wards became so famed for their good management of purulent ophthalmia, that whenever a severe case of this description occurred in the institution it was immediately transferred to their care. The management consisted in the continual removal of the discharge, and the frequent cleansing of the lids by means of a fine sponge and lukewarm water. The plan pursued was to lay the child across the knees, and to let the water pour out from the sponge over the eyes, the lids of which were held gently apart(*b*). M. Chassaignac likewise informs us that these douches have been found highly efficacious in the removal of corneal opacities which had resisted the ordinary methods of treatment. The projection of a stream of water of different temperatures against the eye, both as a means of cleansing it from impure discharges, and as a most grateful method of relieving pain and irritation, has been employed in the Ophthalmic Clinique in Vienna since the days of Beer. We have lately established douches of this description in St. Mark's Hospital, and as we think they will be found highly efficacious in similar establishments elsewhere, and should be employed in every hospital where diseases of the eye are treated, we give the accompanying illustration. Moreover, by this means the possibility of conveying infectious matter from one patient to another, by means of sponges, &c., will be in a great measure avoided. In this section, A represents a zinc or tin cistern capable of holding from three to four gallons of water, and which is fastened to the wall of the ward or waiting-room. It is open at the top to allow of its being filled, but closed by a well-adapted lid, in order to exclude all impurities. A funnel-shaped zinc tube, furnished with



(a) *Revue Medico-Chirurgicale*, September, 1847.

(b) See Dr. Evory Kennedy's paper upon the Purulent Ophthalmia of Infants, read at the meeting of the British Association in Dublin, in 1835.

a fine strainer, is attached to its bottom. This ends in a pipe B of quarter inch bore, which is also fastened against the wall, and bent into the curve here represented. This is furnished with a stop-cock at C, and its extremity is so constructed as to permit of several descriptions of tubes and roses being attached to it. This curve is about three feet and a half from the ground, so that a person of middle stature may be within reach of the jet of water when stooping his head over it. D is a zinc basin furnished with an ordinary plug and waste-pipe, into which the water falls, and which may be also used as the usual washing basin of a ward. The cistern can be filled with either hot or cold water as the occasion requires, and in large establishments it may be connected with the ordinary forcing apparatus. The strength of the stream or jet can be regulated by the stop-cock.

Scrofulous Ophthalmia.—The irritability of the Schneiderian membrane in this disease, and the sneezing and other phenomena which it so frequently presents, are well known to every practical surgeon, yet, until lately, the actual condition of the mucous membrane lining the nose has not received much attention. M. Morand has lately directed particular notice to this circumstance. He says: “In scrofulous ophthalmia the olfactory membrane participates with the conjunctiva in the inflammation that is set up; that it is especially about the turbinate bones, and in the anfractuosities of the nasal fossæ, that the inflammatory action resides; and that this shows itself in the form of an œdematous engorgement, precisely similar to what is observed in the eye-lids. The more I study this disease, the more convinced am I that this is the case. A little attention suffices to show that the redness and tumefactions of the pituitary membrane almost always precede or accompany that of the conjunctiva. This can be more positively determined by means of the speculum auris. On examining attentively the interior of the nasal fossæ, one cannot fail to observe that the redness and swelling of the nostrils, and even of the upper part of the lip, that are so commonly observed in persons of a scrofulous habit, are merely an evidence of the inflammatory action going on in that membrane. It is by proceeding in this way that we can best appreciate the degree and extent of this inflammatory action, the extension of which to the palpebral and ocular mucous surfaces is often very rapid; sometimes, however, it remains for a long time stationary, without showing any disposition to extend.” For the relief of this disease M. Morand applies the nitrate of silver, either in substance, solution, or ointment, extensively over the surface of the pituitary membrane. The value of this remedy has been extensively attested by Dr. Edwards of Bath, and, according to his experience, with the most decided benefit, even in cases of long standing, and where other remedies had failed(a).

Granular Conjunctiva.—Except in Egypt, we have never seen so

(a) *Lancet* for April, 1847.

many instances of what are termed granular lids as in Ireland. The cause of this it is as difficult to explain as it is why syphilitic diseases, with a breach of surface, are so prone to spread and run into phagedenic sores, in one part of Europe, and to throw out condylomatous excrescences in another, for instance, in Southern Germany. The fact as to the peculiar disposition which the conjunctiva, particularly of the upper lid, has to become granular, either during the progress of, or as the sequel to the ordinary ophthalmia, among the lower orders in this country, is well known to practitioners. In certain subacute forms of ophthalmia, particularly among the ill fed, badly housed, and poorly clad artisans and labouring population of this city, this granular condition can often be observable at a very early stage of the disease, when the villi upon the palpebræ become developed, like a kind of nap, upon the surface of the cartilage. The conjunctiva may be intensely red, but still shining and polished, and presenting distinct vessels. As soon, however, as the villi become developed in its first stage towards granulation, these vessels are no longer distinguishable, and the surface presents a dull red hue, and, when it is examined with the lens, presents a roughened velvety appearance. From this to the stage where the surface of the upper lid, in particular, resembles a ripe raspberry, with distinct nail-headed granulations of several sizes, the appearances have been already described in books. It is to such cases, which are often met with in discharged soldiers, that we would now draw attention. Having frequently remarked that in cases which had recovered from granular lids, the surface of the conjunctiva covering the cartilage presented a number of white furrows or cicatrices, crossing one another in different directions, it occurred to us that if those could be produced artificially, it would hasten and facilitate the removal of the disease. When, therefore, upon the lid being everted, a few of these granulations, with narrow pedicles, present above the rest, we remove them rapidly with a curved scissors, and also as many as stand out at the line of reflection of the everted cartilage, where they are usually very abundant. And then, or in cases where such peculiarities may not present, we make a number of incisions through the granular surfaces, down to the cartilage, with a small round-pointed knife, like an old-fashioned dinner-knife. These incisions should commence below, in order that the blood may not obscure the operator's vision, and run the whole length of the cartilage. Four, at least, of these should be made, and they should be crossed by a number of cuts, drawn from above downwards, nearly perpendicular. By this operation a description of "firing," like that which is performed upon horses, is put in practice. The lid should be kept everted as long as the patient can bear it, in order to promote the hæmorrhage, which is often considerable. The next day, upon examining the part, it will be found very much paler, and the granulations sunken and flabby, particularly along the line of the incisions. We then rub the surface of the lid, and particularly the incisions, with a smooth, heart-shaped crystal of

sulphate of copper, taking care to insert it likewise under that portion of the lid behind the angle of reflection, which cannot be well exposed to view, for there the granulations are generally most abundant, and often remain and keep up irritation long after those lower down upon the lid have been cured. The surface of the lid should then be well oiled, as this lessens the subsequent pain very much. By these means, firing the lids every fourth or fifth day, and applying the bluestone on the alternate days, we have succeeded in curing cases of the most inveterate granulations. At the same time, constitutional treatment should not, by any means, be neglected; and among the strengthening medicines which we possess, cod-liver oil seems here particularly efficacious. In some cases the application of a single leech to the internal surface of the upper or lower lid every second day will be found very effectual; and, thus applied, leeches do not usually produce that œdema and erysipelas to which some persons are so liable, but great care must be taken that the leeches are not allowed to adhere too near the edge of the lid, where the wound which they make is often very annoying.

The following *Method of Applying Sulphate of Copper* in the granular state of the upper eye-lid we have employed for some years; it will be found much more efficacious, less painful to the patient, and much more easily applied than the ordinary mode of proceeding. The piece of bluestone should be shaped somewhat like a spade in cards, with a blade about three quarters of an inch long, and filed down to the eighth of an inch in thickness. It should be fastened by its shank in a large quill, and occasionally rubbed smooth with a little water, to keep its edge and surface even. When about to be used, the lid need not be everted, but slightly lifted off the globe, by drawing the integument upward against the brow in the usual manner, and then the piece of bluestone may be inserted underneath the lid, towards the internal side, as high up as possible, and held a little out from the eye, so that it does not touch the surface of the globe. It is then drawn downwards and outwards towards the external angle. It is astonishing with what facility this manœuvre, after a little practice, can be accomplished, and what little uneasiness it causes the patient. Moreover, by this means we at once reach those large flabby granulations which are seated high up towards the reflection of the conjunctiva from the globe, and where, owing to there being less pressure exercised upon them, they grow much larger than anywhere else.

Dr. Clay Wallace, of New York, recommends a solution of six or eight grains of chloride of gold to an ounce of water, for the removal of granulations on the mucous membrane of the lids. "In recent cases," he says, "the chloride of gold is inferior to the nitrate of silver in curative effects, and it occasions far more irritation: in chronic thickened lids, on the other hand, it is vastly superior."(a)

Dr. Hays, in his commentaries on Mr. Lawrence's work, says

(a) The Boston Medical and Surgical Journal, November 3, 1847.

that "a very large proportion of the applicants for admission into Wills' Hospital labour under this disease; and the treatment which they have undergone, as well as the statement of several patients, lead us to infer that physicians, generally, are not as well acquainted with the complaint as it is desirable they should be. Two years ago we were led by the favourable reports of the efficacy of iodide of zinc, in reducing enlargement of the tonsils, to try this application in cases of greatly thickened conjunctiva of long standing, which had proved rebellious to various remedies. The result was so satisfactory that we have since employed it in a few similar cases, and our experience thus far authorizes us to recommend this remedy to the attention of the profession." In using this remedy, it is necessary to evert the lids, and wash off the caustic with some tepid water and a fine sponge, immediately after its application. When the eye is irritable, and there is much lachrymation, the author recommends a cold salt-water bath to the eyes. The douche, described at page 476, will prove a useful mode of applying this.

Mr. Wharton Jones's work contains several useful though brief remarks on the subject. He says: "The ocular conjunctiva does not become granular, as the palpebral conjunctiva does, seeing that it does not possess a papillary structure, similar to that which, in the palpebral conjunctiva, forms the peculiar seat of granular prominences. Any granular appearance which may be presented by the sclerotic, or corneal conjunctiva, is owing to real granulations." He very properly lays stress on the necessity of examining the state of the internal surface of the upper lid in all cases of chronic ophthalmia. It is astonishing with what rapidity granulations will form, in some cases, and in some constitutions, even in the acute stage. In the epidemic of post-febrile ophthalmia, which we had lately in this country, when the disease was seated in the external tunics of the eye, a granular condition of the entire palpebral conjunctiva often formed in a few days, the granulations being of a dusky red colour, large, and flabby. The patients in these cases generally had had one or more relapses of fever, and one of the most remarkable and constant symptoms in the disease, both when it presented as an external ophthalmia, chiefly affecting the conjunctiva and sclerotic, and also when it seized upon the internal structures, and was accompanied by defective vision, was a feeling of pressure upon the upper surface of the globe, as if the finger was buried deeply beneath the edge of the orbit. "In the treatment of granular conjunctiva," continues Mr. Jones, "care and perseverance are required, carefully conducted diet and regimen; tonics, good air, and protection from changes of weather, are important general points of treatment. The local treatment should consist of, first, the application of a leech or two to the eye-lids, occasionally, to relieve congestion; second, counter-irritation kept up by repeated blisters to the nape of the neck; third, scarifications of the affected conjunctiva, every second or third day, and immediately thereafter, the application of some strong salve, such as red precipitate. If the

granulations are large and prominent, instead of simply scarifying them, they may be shaven off with a lancet-shaped knife, or if pedunculated, they may be stripped off, one by one, with curved scissors.”(a) In another place the same author says : “ A mode of scarification which I have employed with advantage, consists in making a small crucial incision through each granulation, or, when they are small and closely compacted, by making a number of cross hatches.”(b) The latter mode of practice strongly coincides with our own operation described above.

M. Desmarres uses caustic pencils of graduated strength, prepared by mixing nitrate of potash with nitrate of silver, in the proportions of one-half, a quarter, and the eighth of the caustic ingredient.

Gonorrhæal Ophthalmia.—In his lecture upon syphilitic diseases, lately published in the *Lancet*(c), M. Ricord recommends the application of the solid nitrate of silver to the affected surface, so as to produce a white film, but not to destroy the tissues ; after which he advises the thorough irrigation of the part, in order to wash off any portion of the salt which may adhere. By this means, he says, the secretion is momentarily suspended, but when the crust formed by the caustic falls off, the pus reappears, though it is then lighter in colour and turns sero-sanguineous. “ So long,” he says, “ as little white streaks, the result of the cauterization, remain visible, and so long as the secretion is not again purulent, you may judge that the influence of the nitrate is continuing ; but when the streaks have disappeared, and the secretion re-assumes its primary character, you may infer that the effects of your cauterization are over, and you may then repeat it ; indeed it can safely be used three times a day.” He thinks that mercurial friction in the early stage of the disease rather tends to increase than diminish it. When chemosis ensues, he advises its immediate incision ; at the same time he thinks that the cauterization should precede the incision. It is in the early stage of this symptom, and when it is merely the result of œdema, that he thinks most benefit can be derived from it, but “ when the chemosis has reached the phlegmonous state, it can no longer be excised, you must then have recourse to scarifications, but their effects are very inferior to those of excision. In the interval between the cauterization with the solid nitrate of silver, I inject into the eye, three or four times a day, a weak solution of the same salt.” M. Ricord also depletes largely, both generally and locally. While we agree in the general rules laid down for the treatment of this disease by the distinguished author whom we have just quoted, we confess our dread of rubbing the coats of the eye three or four times a day with the solid nitrate of silver. Upon the subject of the treatment of the urethral discharge, during the continuance of the

(a) *Ophthalmic Medicine and Surgery*, p. 177-8.

(b) *Ibid.* page 38, s. 149.

(c) *The Lancet*, February 12, 1848.

ocular affection, M. Ricord's observations are worthy of attention. The urethral discharge, he says, no doubt diminishes, but never altogether ceases, when the eye is engaged. He objects to taking pus from another individual in order to reproduce the urethral discharge, because, as he justly says, there may be latent chancres in the urethra which yields the pus, and then an additional misery might be entailed. When the ocular disease has been communicated from the urethral discharge of the same person, he uses copai-bia "in order to control the urethritis, as in so doing I remove the chance of relapse as regards the eye."

Intermittent Quotidian Ophthalmia.—Dr. Lohman, during the intermittent fever which prevailed last year, observed the following case. A man thirty-eight years of age was attacked for five consecutive days, at the same hour, by violent pain in the left eye, accompanied with increased flow of tears, redness of the conjunctiva, and some intolerance of light. An hour afterwards the pain extended to the orbital region, and towards evening, about seven o'clock, the symptoms gradually diminished, perspiration ensuing. The next morning no sign of the disease remained. The right eye was not in the least affected. Before the occurrence of the attack each day the patient experienced some uneasiness, not, however, amounting to rigor. Leeches, blisters, and various applications, were tried in vain. The administration, however, of twelve grains of quinine cut short the disease on the sixth day(*a*).

Fatal Tetanus from Injury of the Cornea.—Mr. Pollock has related a case of a man, aged 33, who had received a lacerated wound of the cornea, from the lash of a gig whip. The cornea was completely divided, but there was no prolapsis of the iris. Violent inflammation ensued, and on the evening of the sixth day tetanic symptoms set in; on the ninth trismus was fully established, general tetanus ensuing; he died upon the tenth morning, the globe having previously suppurated(*b*). The case is one of extreme interest.

Rupture of the Cornea.—A case of this description has been lately mentioned as occurring from the extraction of a molar tooth, in performing which the maxillary bone was fractured. It is said that at the moment both sight and hearing were lost, so that we must suppose the shock was very great. The cornea of the eye immediately presented a peculiar livid appearance, and the hernia of the iris suddenly took place through the rent. Violent inflammation appears to have ensued, and a large staphyloma followed. Dr. Duval removed this latter, as well as the protruding chemosis upon the eighth day after the accident, by which means the pain and inflammation were greatly lessened. Both the senses of hearing and tasting were greatly impaired by the accident, and have not since been recovered. These defects are attributed to some lesion of the fifth pair of nerves.

(*a*) *Gazetta Medica di Milano*, February 27, 1847.

(*b*) *Medical Gazette*, June 4, 1847.

Opacities of the Cornea, Collyria, &c.—In our Report of last year we expressed our opinion pretty strongly on the subject of the various remedies proposed for the removal of specks and opacities on the cornea. The Journals teem annually with the praises of various therapeutical agents, the efficacies of which in such cases are said to be infallible. So long as those notices are confined to isolated cases, recorded by practitioners, who do not treat diseases of the eye on a large scale, and who simply relate that the patient had an opacity of the cornea, without stating exactly what the pathological condition of the parts were, we have no desire to do more than merely enumerate the various panaceas, from brandy and salt to prussic acid. But when we find a surgeon to an ophthalmic institution now extolling the virtues of the latter remedy for the removal of albugo leucoma and nebulæ, we are inclined to examine the cases which he has recorded with some care. The Turnbull delusion of curing cataracts, corneal opacities, staphylomas, and even amauroses, by the vapour of prussic acid, has passed away in this country. Not so, however, in British America. Dr. Howard, of Montreal, has carried thither the hydrocyanic treatment of corneal opacities. It is said that “of eighteen with albugo, twelve were cured and six relieved ; of seven with leucoma, six were relieved and one abandoned as incurable.” Before we make any further remarks upon these broad assertions, we must here again, as we did last year, distinctly protest against the loose descriptions of corneal opacities under the heads of specks, feathers, nebulæ, clouds, opacities, pearls, leucomas, albugos, cicatrices, and even staphylomas of the cornea, which are daily reported in the periodicals to have been cured. In order to enable us to judge whether the case was one susceptible of cure by time, improvement of the constitution, the ordinary efforts of nature, or the use of local stimulants, we must have it distinctly specified what was the cause of the opacity, through what portion of the substance of the cornea it had proceeded, and whether there was adhesion of the iris to the cornea or not. Until those things are fairly stated by the ophthalmic surgeon, the profession must receive with caution the cures reputed to have been performed by any particular agent, even though the patient may have—as occurred with one of Dr. Howard’s—“before returning to Wales, his native country, left a certificate (as a voluntary effusion of gratitude), stating the benefit he had received.”(a)

M. Laundrau recommends the application of a collyrium composed of twelve drops of tincture of iodine in seventy grains of distilled water, in cases of suppurating and ulcerated cornea, with pus both in the anterior chamber and the laminae of the cornea ; and records one case in particular, in which the purulent matter filled one quarter of the anterior chamber, in which this treatment proved efficacious in causing absorption, after other treatment of an antiphlogistic

(a) The British Medical Journal of Physical and Medical Sciences, edited by Dr. Archibald Hall, Montreal.

nature had failed(*a*). The efficacy of the external application of the strong tincture of iodine, in dispersing swellings and causing the absorption of indolent tumours, particularly of a glandular and scrofulous character, is already well known, but we very much doubt its efficacy in the instances cited by M. Laundrau. Depots of matter in the anterior chamber of the eye are of frequent occurrence in this country; and during the past year the number of accidents arising from stone-breaking, to persons not generally in the habit of performing such labour, was greater than usual. When matter forms in the cornea it is either diffused or circumscribed; the latter is generally the result of the ordinary pustule, and when it is discharged an ulcer remains, which may open, as is usually the case, externally, and its contents, with the subsequent secretion, be washed off with the tears and the motion of the eye-lids; but sometimes it opens internally, and then the matter, falling into the anterior chamber, deposits in a crescentic shape between the cornea and the iris; level, as is the property of all fluids, above, and semicircular below, precisely resembling the white appearance seen at the root or posterior margin of the human finger nail,—and hence the ancients gave this appearance in the eye the name of *onyx* or *unguis*. Yet, strange as it may appear, with the exception of the late Mr. Tyrrell, no writer of modern times has properly understood or defined this term; even Mr. Lawrence, although he is quite conscious of the difficulty, and even expresses in words the exact appearance which we have been describing, still retains the old term, as may be seen from the following quotation: “It has been commonly represented that when the cornea suppurates, the effused matter insinuates itself between the laminae, finds its way to the bottom, and, accumulating at the lower edge, produces there an appearance which has been called *onyx* or *unguis*, from its resemblance to the mark at the root of the nails. I believe that the cornea is too dense to admit of this mechanical sinking of the matter, and cannot say that I ever saw *onyx* in this sense. I believe that the matter remains in any part of the cornea in which it may have been deposited. The appearance similar to the white mark at the root of the nail takes place where matter is effused into the anterior chamber, that is, in hypopyon rather than in suppuration of the cornea or *onyx*.”(*b*)

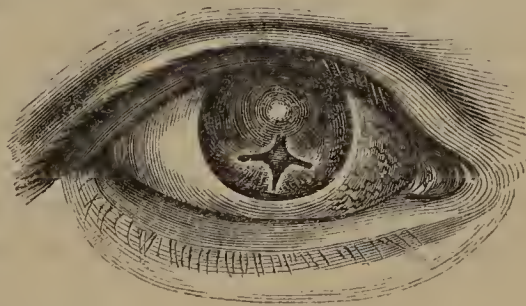
It is time that this very general error in ophthalmic writers should be corrected. Suppuration of the lens, or of the iris, or a general suppuration within the globe, or pus poured out from the membrane of aqueous humour, and where, as well as in ulcer upon the back of the cornea, a stream of purulent matter may often be perceived coursing down the back of that membrane, will all give rise to this appearance. In hypopyon, however, the matter is more or less diffused throughout the laminae of the cornea, and not inaptly resembling purulent infiltration of a limb in certain forms of erysipelatous

(*a*) *L'Union Medicale* for 7th October, 1847.

(*b*) Lawrence on the Eye;—American edition, p. 337.

inflammation. This is very frequently the result of such mechanical injury as a piece of stone or brick striking the cornea smartly ; slow but generally-diffused inflammation of all the tissues of the eye usually follows. The organ is more prone to degenerate into supuration than pour out lymph or run into the adhesive process, as occurs in the more active forms of ophthalmia, or when the wound has been inflicted by some sharp, cutting instrument. The usual practice here is to deplete largely, apply stimulating collyria, and put the patient upon the use of mercury ; and even in some instances, where the pus had accumulated to a great extent in the anterior chamber, the cornea has been opened with the hope of relieving pain and letting out the contained matter ; all of which practices, the lowering of the system, the employment of mercury, the use of lotions or drops, such as solutions of nitrate of silver, &c., and the meddling with the cornea, are, according to our experience, highly injurious ; and we have seen many cases during the past year in which the organ was totally lost while the patient was under the influence of mercury ; while, on the other hand, we have successfully treated several cases by the method about to be described, in which the anterior chamber was more than two-thirds filled with pus. The cornea was in a sloughy state, and infiltrated with pus ; there was considerable serous chemosis ; generally diffused redness of all the tissues ; violent pain, particularly in the brow, and greatest at night ; mucopurulent discharge from the eye ; redness and œdema of the lids, together with a weak state of the constitution ; small pulse ; cold, clammy skin ; paleness and anxiety of the face, and all the powers generally below par. In such a case as this, no matter how produced, we believe that mercury will increase the mischief. Small cuppings of the temple, or the application of a few leeches every second or third day, blistering the brow, and dressing the surface with mercurial ointment and belladonna, regulation of the digestive functions, but, above all, the liberal use of bark, a nutritious diet, and pure air ; and as the inflammation lessens, the preparations of potash and iodine will be found effectual. The same observations apply to purulent deposits in the eyes of children labouring under the ordinary scrofulous ulceration of the cornea. In these cases the syrup of iodide of iron is an exceedingly efficacious and easily taken medicine.

Abscess in the Iris.—We have lately had in St. Mark's Hospital two cases of injury of the cornea from splinters of stones, which presented, on admission, all the symptoms above described. Upon the pus clearing off so as to permit the lower segment of the iris to be examined, it was found to present the rare appearance of abscess in the substance of its tissue. An open ulcer from which pus was discharging was plainly visible upon



the iris; and one of these cases, that of a man aged 35, presents, now that all the inflammatory action has subsided, the peculiar puckered yellowish white cicatrix of the iris which is represented in the accompanying illustration. The injury inflicted upon the cornea in this case occurred toward the upper portion, where a small leucoma, with attachment of a portion of the pupillary margin of the iris, still remains. The general haziness of the cornea is clearing off daily; there is some vision remaining, and the form of the eye is perfectly natural. The iris could not possibly have received an injury at the place where this cicatrix is situated.

Acupuncture for the Removal of Corneal Opacities.—The foreign Journals have been occupied during the past year with the details of cures said to be effected by this agent, which has been particularly recommended by M. De la Flor, whose claims, however, to originality in its introduction have been disputed. The mode of treatment consists in introducing an ordinary acupuncture needle, previously dipped in a solution of prussic acid, into the cornea, within half a line of the sclerotic, at the superior and transverse diameters of the eye, consequently at four points; and allowing the needles to remain in for from two to five minutes. The needles are introduced sometimes nearly as far as the laminated cornea, sometimes as far as the aqueous humour, and in other cases to the lens, by which we suppose the reporter means completely into the anterior chamber. Upon withdrawing the needles reaction and inflammation is to be met by the ordinary means in such cases(a). We have not tested this novel mode of treatment, nor are we sanguine in our expectations of it. It is possible, however, that the new action thus set up may excite absorption, and thus assist the removal of opacity. We have seen cases of corneal opacity of long standing, which were very much diminished after a smart attack of inflammation.

Cure of Corneal Opacity by Abrasion.—M. Szokalski says he has succeeded in removing opacity of the cornea by scraping its central portion with a knife, as a piece of paper is scraped to remove an ink stain. He repeats the operation several times, removing very little each time, so as not to induce inflammatory action, and he never scrapes the membrane near its circumference, for he is of opinion, that the central portion bears mechanical lesion much better than the circumferential(b). Herr Gultz of Vienna, some years ago, recommended, and also practised the operation of shaving off the external laminæ of an opacity, so as to get down on the elastic cornea, which is seldom injured or opaque..

Anæsthesia in Ophthalmic Practice.—We have on more than one occasion, both with reference to *ether* and *chloroform*, stated our opinion upon the value of this practice in ophthalmic surgery, and we have given both agents a sufficient trial. In painful or pro-

(a) *Gazette Medicale* for 29th May, 1847.

(b) *L'Union Medicale*, March, 1841.

longed operations, the removal of an eye-ball, the extirpation of tumours, plastic operations on the lids, ectropion and entropion, we have used them with the usual efficacy in such cases. We have not, however, employed chloroform (and ether is more objectionable) in operations on the globe, because it is unnecessary, might in some cases prove injurious, and in several it is inapplicable. In most operations on the globe a certain amount of volition is necessary on the part of the patient; for instance, in strabismus, after the muscle has been fairly divided, and to all appearance cleanly dissected off the sclerotic, it is possible that some small fibre, particularly at the upper edge of its insertion, may still remain (as indeed we often know it does) and prevent the ultimate perfect success of the operation. Now to assure himself upon this subject, the operator should, as soon as he thinks the muscle has been fairly divided, and all the immediate cause of squinting removed, direct the patient to turn the eye inwards, in order to judge of the result of the operation. If the ability of squinting remains, something further must be done, either by searching for some undivided fibre of the muscle, or applying a ligature, &c., as we directed some years ago. But how are we to judge of this if the patient is unconscious? We do not think the operations for extraction, artificial pupil, reclinacion, or breaking up of a lens, are at all so painful as to require the employment of an agent to render the subject of them insensible. In extraction we should certainly fear to use it; we generally make the upper section, and the cornea is usually turned upwards during the use of chloroform; moreover, in this case it is also necessary that the patient should retain such consciousness as will enable him to turn the eye in the different directions required. Suppose, however, we complete the operation with success during the state of insensibility, and that a slight convulsion, a spasm or a nervous excitability, seizes the patient upon awaking from the state of unconsciousness, prolapsus of the iris, loss of the vitreous humour, and perhaps complete collapse of the eye, may take place in an instant during this struggle, or the patient may, inadvertently, to use popular phraseology, rub his eye out. There may be, however, cases in which a state of insensibility may be beneficial during the performance of such delicate operations.

Dr. Mackenzie recommends the employment of ether (and, we presume, of chloroform on the same principle), in the treatment of various forms of ophthalmia, particularly where there is much photophobia. In the cases where these means was employed, the immediate relief to the distressing intolerance of light was very manifest; but it does not appear to have produced any material alteration in the progress of the disease(*a*). Dr. Smith of Cheltenham has also written on the same subject(*b*); and says that he has employed this means largely to enable him to examine and manipulate on the eyes

(*a*) Medical Gazette, June, 1847.

(*b*) Idem, October 15, 1847.

of young children affected with strumous ulcerations, &c. Dr. Smith very justly remarks, that the state of insensibility is much more easily produced in young children than in adults. We have not, however, experienced such difficulty in the examination of ophthalmic cases, or the application of remedies, as to require the use of the means recommended by this writer.

Foreign Bodies in the Eye.—M. Petrequin, whose investigations we alluded to in our last Report, has lately enlightened the profession by an article on the best mode of removing foreign bodies from the eye, for which purpose he recommends camel-hair pencils, magnets, lancets, and probe-pointed bistouries, &c., as well as injections of rose-water, all which come under the same category as the various collyria recommended from month to month. When a foreign body, such as a bit of coal or metal, sticks in the cornea lining the upper lid, it is easily removed by everting the lid. When adhering to the cornea the only instrument which we ever find necessary for its removal is a sickle-shaped cataract needle, in shape somewhat resembling that which we described at page 98 of the last Number of this Journal. It is unnecessary to advert to the mode of using it, or to enter at any length on the subject here. Every ophthalmic surgeon, particularly in large towns and manufacturing districts, has ample experience in treating these accidents. Notwithstanding the armamentarium recommended by the Montpelier surgeon, those small portions of iron which fly from the over-tempered steel picks used by millers in dressing millstones, or which are projected against the eye in turning metal, &c., are constantly removed by the workmen themselves, with a small piece of quill cut like a pen, which is kept in the establishment for the purpose. Mr. Bowman, who has lately investigated the structure of the eye with great attention, and who has discovered an *anterior elastic lamina*, like the membrane of Decimet, which lies immediately under the conjunctiva(a), states that “the existence of this lamina will help, I think, to explain what must have often puzzled surgeons, viz., the tenacity with which small particles of steel, or other sharp angular fragments, stick in front of the cornea, or just within the surface. These will often remain for many days, or even weeks, and prove the cause of much inflammation, and yet be still found difficult of extraction, which could hardly be the case if the laminated tissue and the conjunctiva epithelium were the only textures in which such particles could be imbedded.”

Corneitis.—We were somewhat surprised when we read an article a couple of years ago in the Edinburgh Medical and Surgical Journal, in which the inflammatory diseases of the cornea were described by the author as if they were unknown to the profession; and our attention is again directed to the subject by a lengthened

(a) See Todd and Bowman's Physiology, and Mr. Bowman's Lectures, published in the London Medical Gazette for October and November, 1847.

review of Desmarres' book, which has recently appeared in Dr. Ranking's Abstract, in which the writer states that the French oculist's description of punctiform corneitis is so novel that it has been given in a condensed form in the extracts published in that work. Desmarres enumerates a superficial and deep-seated form of this disease, but it is unnecessary to enter at any length into his descriptions. The disease consists in inflammation and consequent thickening and opacity of the membrane of aqueous humour lining the back of the cornea, and extending to the membrane of Descemet, in which the inner surface of the cornea presents a speckled or dotted opacity, as if sprinkled over with a fine bluish-white powder, and which is most easily recognised by examining the cornea in profile, by which means we assure ourselves that the laminated, external elastic, and conjunctival layers of the cornea are not affected. This disease more frequently spreads to the substance of the cornea than to the iris. It is a form of inflammation well known to those who treat diseases of the eye upon a large scale, and has been frequently described by English authors. Mr. Tyrrell has described it under the name of aquo-capsulitis; and to his description, as it happens to be that which is now nearest to our hand, we would refer the reader of the work to which we have just alluded.

Ulcers of the Cornea.—In penetrating ulcers of the centre of the cornea, with prolapsus of the iris, we are told by M. Desmarres that we should not despair of the reduction of the iris unless gangrene of that part has set in. Now what gangrene of a portion of protruded iris may be we confess we are ignorant. While the term hernia is not inaptly applied to this peculiar state of the parts, the surgeon must not suppose that all the changes which take place in a portion of strangulated intestine occur in the iris. When a portion of the iris has protruded through the cornea, either from a wound or ulceration, and become there adherent, the protruding portion of it is not got rid of by gangrene, and it frequently requires to be removed by excision after days and weeks of irritation. For prolapsed iris Desmarres recommends the patient to be kept in a recumbent position, with the head low, and iced infusion of belladonna and hyoscyamus to be applied with light compresses to the eye, and a drop of the same liquid distilled between the eye-lids every five minutes. We strongly object to this opening of the eye-lids every five minutes, as we can conceive nothing more likely to increase the protrusion than this very proceeding. We must here again refer to our observations upon the use of atropine, published in the fourth Number of this Journal for 1846, p. 555. We still believe that the best thing which can be done in penetrating ulcers of the centre of the cornea is to touch the rupture with a weak solution of nitrate of silver applied with a fine camel-hair pencil (but if the iris has protruded it is better to omit this); then to drop into the eye a strong aqueous solution of atropine; to close the lids carefully with a strip of isinglass plaster extending from the forehead to the cheek; to apply the extract of belladonna plentifully in the usual manner all round the external parts; to les-

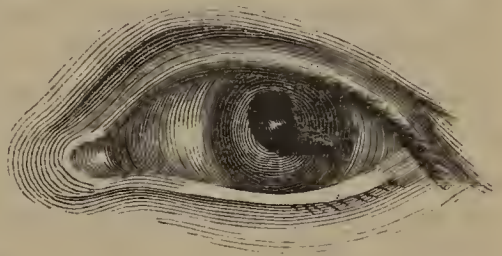
sen congestion and inflammation by local depletion, such as cupping or leeching, &c., and to relieve whatever other urgent symptom may present ; to confine the patient to bed or the recumbent posture ; to enjoin extreme rest, and not to meddle with the eye for forty-eight hours at least. There is a gentleman of our acquaintance who suffered from violent ophthalmia many years ago. His left cornea is quite irregular upon its external surface, and is apparently thinned from previous ulceration. He has had several attacks of sclerotic inflammation, with slight superficial ulceration of the cornea, in both eyes. Upon each occasion the left cornea gave way during a fit of sneezing, coughing, or some similar sudden exertion. The aperture was not like that formed by a penetrating ulcer, but was a rent or tear upwards of a line in length, extending across the transverse diameter of the cornea. On two of the occasions the iris protruded, and once a portion of it had prolapsed for several hours before I saw it; yet, by the treatment above described, he recovered perfectly, with a slight brown mark left by the pigment of the iris upon the back of the cornea.

The transparent ulcer of the cornea has been long known and described ; in some instances, however, we are unable to detect it when we examine the cornea in front, and only become aware of its existence by observing it in profile, or making the patient roll the eye about. There is, however, a symptom attending this form of ulcer with which we have been long acquainted, and which has not, that we are aware of, been heretofore described ; it is the dark shadow thrown upon the surface of the iris by this ulcer, be it ever so transparent or so small, particularly when the patient stands opposite the light. At first view this shadow, which is generally a dark circular spot through which the natural colour and striæ of the iris can be seen, appears like an ordinary congenital mark, but from this it can be distinguished by turning the head or eye from side to side, when it will be seen to shift its place on the surface of the membrane.

Conical Cornea.—Mr. W. W. Cooper has lately paid particular attention to this peculiar disease, and communicated to us the result of his experience. The pathology of this affection, as explained by Mr. Middlemore, and Jäger, of Erlangen(*a*), is, that the alteration in the form of the cornea is caused by the interstitial absorption of its central portion while the circumference remains healthy, the pressure of the aqueous fluid causing this portion to yield, and that it is thus pressed forward. “The membrane being thus weakened,” writes Mr. Cooper, “is not in a condition to recover itself, unless the pressure from behind is removed, or support afforded to enable it to counteract that pressure. I have, therefore, endeavoured to combine these measures by evacuating the aqueous humour, and making moderate pressure on the front of the

(*a*) See Dublin Journal of Medical Science, vol. xxviii. pp. 102, 103.

globe, by means of an air cushion, acted upon by a spring, after the manner of a truss. By employing fluid pressure, I hope to afford general support rather than pressure upon the apex of the cone, only such as would result from the pressure of a solid body, which would also be more likely to excite irritation and other evil consequences." This plan was adopted in five cases without producing pain or irritation, but in neither case could it be persisted in for longer than three weeks, "in consequence of the air cushion, which was made of fine membrane, permitting the air to escape after being worn for five or six days." "Decided benefit, however," continues our informant, "did arise in a case where the apparatus was worn for a month, the aqueous humour having been evacuated three times during that period; and should the difficulty of obtaining a perfect apparatus be overcome, my belief is that this plan of treatment, in combination with general measures, will be found advantageous." Although this method is ingenious, we confess that we are not very sanguine as to its results, nor do we think any description of pressure will produce a thickening in the cornea, while at the same time it preserves its transparency. The only case in which we have ever produced permanent benefit was one in which we performed an artificial pupil, as recommended by the late Mr. Tyrrell. In this instance the lady was scarcely able to find her way through the streets. She had consulted the principal oculists in these countries, and had undergone several courses of treatment. She had been for a long time under the care of the late Mr. Wardrop, who tapped the cornea several times. In the summer of 1842, assisted by Mr. Cusack, we performed an artificial pupil in her right eye, not, as recommended by Mr. Tyrrell, by cutting out a portion of the iris, but by drawing its pupillary margin through an incision in the cornea, made close to its insertion, with the sclerotic externally. By this means the pupil presented the appearance here figured. This lady now reads very well by holding the book towards the right side.



Under this head may also be classed the following interesting case. A lady, aged 35, lately consulted us for what she termed weak sight, a difficulty in reading or discerning objects clearly in a strong light; but when the light does not fall upon the eye she can read pretty well. Upon looking at the eyes in front, a small, greyish, shining spot presents in each cornea, a little within and beneath the centre. At first sight this has the appearance of a vesicle, and bears some resemblance to the ordinary air bubble which appears in badly made glass. Upon examining the eye in profile, the cornea generally does not present any unusual convexity; but we can perceive a small mammillary projection at the spot referred to, which in this view appears perfectly transparent. Upon applying a fine camel-hair pencil to this spot, or drawing it over the surface of the cornea,

it at once sinks into a depression at the projection. It is manifest that the cornea has become thinned at this particular spot. Each projection is not larger than a small pin's head, and it is remarkable that they are precisely similar both in shape, appearance, and situation, in both eyes.

In certain forms of long-continued ophthalmic disease, in hydrophthalmia, and other cases where there is considerable distention of the globe, vesicles frequently form upon the surface of the cornea. They are quite transparent, are sometimes as large as a third of a pea, and are evidently formed by a fluid collecting between the thickened conjunctival layer of the cornea and its anterior elastic lamina. They are generally indicative of the amount of distention. There is at present a gentleman under our care whose lens was broken up for cataract some years ago; violent inflammation immediately followed, succeeded by that of a slow, chronic, but disorganizing character; complete loss of vision, and an enlargement of the globe, ensued. When we first saw him about a year ago, he had been suffering for some months previously from violent pain and distention of the globe, arising, he said, from "blisters collecting on the eye." Upon examining the eye, we found it exceedingly tense and painful to the touch, with the conjunctiva of the cornea thickened, and raised into vesicles, which, according to the patient's account, always formed when the eye became painful. We tapped the eye at once, by introducing a broad, flat needle through the cornea, giving it a half-turn so as to enlarge the opening, and permit the fluid to escape. This gave immediate relief. Whenever this gentleman feels the eye painful, or the blisters forming, he comes to town, and has the fluid evacuated, when all pain and irritability ceases. The eye now is nearly of the natural size, and intervals of ease are lengthening.

Mr. Wardrop long since recommended the evacuation of the aqueous fluid in cases of corneitis and aquo-capsulitis; and M. Desmarres lately advised paracentesis of the eye as a means of assisting antiphlogistic treatment in the reduction of internal ophthalmia, whether idiopathic or the result of surgical operation(a).

AFFECTIONS OF THE INTERNAL TUNICS, DIOPTRIC MEDIA, AND SENSITIVE APPARATUS.

On the Structure of the Vitreous Humour.—Dr. Hannover, of Copenhagen, has lately investigated this structure with great care, and his researches have controverted the generally received opinion of its being entirely a cell structure. The opinion of Pappenheim (who, having hardened the vitreous humour of an ox and a man, by treating it with carbonate of potash), that this body was composed of concentric layers, like those of an onion, is not quite cor-

(a) *Journal des Connaissances Médico-Chirurgicales*, 1st July, 1847.

rect, at least as far as the human eye is concerned, for this appearance is evidently the result of the coagulation of the albumen. M. Brücke, from whose observations Müller took the description of the vitreous humour which he has published in his Physiology, used a concentrated solution of the acetate of lead; but this physiologist's description is true only in part, as it does not define in what manner the different layers terminate. Dr. Hannover, who made his observations on the vitreous humours of several mammiferous animals which had remained in a solution of chromic acid for at least six months, gives the following description of this substance. Its structure is clearest in the horse; if a transverse section of the eye be made horizontally, and passing through the optic nerve, a great number of concentric lamellæ, which divide themselves into smaller ones, are observed; the external ones follow the internal circumference of the eye; they are thicker next to the retina, and thinner behind the crystalline lens. The vitreous humour, he says, considered as a whole, consists of several bags or cells, of various degrees of thickness, completely shut, and contained one within another. The exterior ones are naturally the largest, and the internal ones are nearer the entrance of the optic nerve than the lens. A line passing from the centre of the optic nerve, where it pierces the sclerotic, to the middle of the posterior surface of the lens, will pass through the summit of all these cells, and through the middle of their convexity. The exterior cells are softer and more transparent; the interior ones, especially those immediately behind the crystalline, are compact and thin; all the cells are thicker towards the sides of the eye, and become thin toward the optic nerve. If the eye is divided vertically, the same onion-like structure of the laminae, particularly in the cat, dog, ox, and sheep, is observed. In man the vitreous humour is found to be chiefly composed of slices, the arches turned outward, and the angles converging towards the axis of the eye, somewhat like the segments of an orange, and this peculiarity is better observed in infants than adults. In two eyes which were very carefully examined by this observer, 180 rays were counted, but he has not been able to determine whether each segment has its own particular membrane, or a single membrane is common to two. Viewed with a microscope, the walls of the slices appear as simple transparent membranes, without any peculiar structure, but covered with innumerable small nuclei, which the author believes to be the result of precipitation. The axis, towards which all the slices converge, is the axis of the optic nerve. Having hardened a human eye in chromic acid, he made both horizontal and perpendicular sections of it. A horizontal section through the centre of the vitreous body presented an uniform plain surface, such as would result from the section of an orange cut right through the centre from pole to pole; whereas a perpendicular section of the vitreous body corresponded with what would result from a section of an orange made at right angles with that last described, viz., a number of rays converging

towards the centre, which rays correspond with the different divisions of the orange-like slices of which it is composed(a).

Cataract Statistics.—M. Sichel has lately published, in one of the Parisian journals, the result of his experience in cataract operations, in the shape of a statistical account of 100 eyes in sixty-four people, which were operated upon by him. In thirty-seven cases both eyes were operated upon ; in this country we are generally inclined to rest satisfied with a successful operation on one eye. Of the entire operated upon, seventy-nine are said to be successful ; of these, forty-one were by extraction, and thirty-eight by depression or breaking up, but the report does not say how many by each method: this is the more to be regretted, as we know that depression is a favourite method with the Parisian oculists, and it is one but little practised in these kingdoms. Ten were partially successful,—five by depression or absorption, and five by extraction ; complete failure only took place in eleven instances, of which three were by extraction, and eight by depression or breaking up: the report states, however, that, of the failures, five of the cases had been pronounced amaurotic previous to operation. Of the sixty-four people, sixty recovered vision, and four remain blind(b).

Cure by Suction.—Notwithstanding the established opinions with regard to the most approved methods for removing or displacing the lens, and the recorded experience of the most scientific and practical ophthalmic surgeons upon the subject, we yearly read of new methods of operating, as well as other means, in the shape of medicinal agents, extolled for the removal of cataracts. When we find practitioners subjecting patients with established cataracts to a course of treatment both local and general, we are greatly inclined—to use no harsher term—to question their experience, and when we find men proposing new methods of operating, such as cutting out a cataract through the sclerotic, and advising depression or breaking up indiscriminately, in preference to extraction through the cornea, we are very much inclined to doubt their capability of performing that dexterous operation. M. Blanchet has lately promulgated a new method of operating upon soft cataracts, which he denominates the operation of suction (*par suspiration*). The pupil having been dilated with belladonna, he punctures the cornea with a large cataract needle towards its circumference, in order that the opacity which follows may not occur in the field of vision. Through this opening he introduces a small tube with a flageolet-like mouth, attached to an Anell's syringe, with which he pierces the capsule of the lens, and if the cataract is soft, he pumps it out through this tube by working the piston of the syringe; but if, on the contrary, the lens is hard, or the capsule dense and opaque,

(a) *Annales d'Oculistique*, Feb. 1848.

(b) *Gazette des Hopitaux*, for 7th October, 1847.

he then has recourse to depresssion!(a) Such is the statement which has been vaunted in all the foreign journals as a discovery in ophthalmic surgery, but which must raise a smile on the face of every well educated or experienced practitioner. In the first place, any thickening or opacity of the capsule should be discovered before an operation is commenced; and although the actual amount of softening—whether the lens is absolutely fluid, or is of its natural consistence as in a young healthy person, or as soft as ordinary starch made for washing—cannot always be determined upon before the introduction of a needle, still it can in most cases be decided with tolerable accuracy beforehand. If the lens be fluid, to attempt this suction is a most unjustifiable, as well as most unnecessary procedure; for the simple introduction of a needle through the cornea, and the laceration of the capsule, will allow the fluid to become diffused with the aqueous humour, in which case it will sometimes be absorbed in the space of a few hours. Every operator of experience well knows, that, even in those cases of fluid cataract, it is necessary to lacerate both the anterior and posterior capsules freely. If this is not done they will, though not previously opaque, become so very shortly; and while the substance of the lens is absorbed, both capsules will adhere, and become remarkably opaque, often remaining in such cases like a piece of egg-shell, held behind the pupil by a very thin, semitransparent membrane. And as these will not absorb, and can with great difficulty be depressed, it is frequently necessary to remove them through an incision of the cornea. Now the very wound made by M. Blanchet's suction pump is just the thing to produce this opacity; moreover, there must be a greater violence and injury done to the eye by this complicated process, than even by the roughest attempts at breaking up, whether through the cornea or sclerotic. In a case of congenital cataract in a young woman aged 18, upon whom we operated last year, and of which an account will be shortly published, this peculiar phenomenon occurred. Upon drawing the cutting edge of the needle across the anterior capsule, its fluid contents immediately burst out, and mixed with the aqueous humour, rendering the latter the colour of skimmed milk, and completely obscuring the iris. Having placed a bandage upon the right eye, we then proceeded to operate upon the left, when the same phenomenon occurred. In the space of about four or five minutes we removed the bandage from the eye first operated upon, when lo! the entire opacity had disappeared, except a few specks which remained on the torn capsule, and nothing was to be seen in the anterior chamber but a few grains of a white powdery substance at the junction of the iris and cornea beneath; and then, upon looking at the other eye, the same clearness was found to have taken place there also, and imperfect vision (for the patient had never seen before) was found to be established. Now we can only account for

(d) *Revue Medicale*, for August, 1847; and *Journal des Connaissances Medico-Chirurgicales*, p. 109.

this rapid removal of the milky state of the aqueous humour, by supposing that the heavier particles which formed it subsided, and, falling through the dilated pupil (for the patient was in the recumbent position), had deposited behind the iris, as a mixture of flour and water will do, if allowed to remain undisturbed; or that some chemical action had occurred between the salts of the aqueous humour and the opaque particles of the cataract.

Removal of Opaque Capsules.—In connexion with the subject of portions of opaque capsule remaining behind the pupil in the manner we have described above, and which are generally the result of insufficiently lacerated capsules in the operation for congenital cataract, we may mention the following mode of proceeding, which we have adopted with great success latterly. A single case out of many will suffice to express our meaning. A boy, now aged 16, had been operated upon for congenital cataract when quite a child; we saw him first three years ago; he could find his way tolerably well in a modified light, but could not read, and was unfit for any occupation requiring accurate vision. An irregularly-shaped piece of capsule, about a line and a half in length in its longest diameter, of a dense white colour, and striated with well-marked wavy lines upon its surface, presented behind the pupil, and was held in its position by a thin, fine membrane, which was attached to it all round, and fixed it apparently to the ciliary circle. Through this fine membrane, when the pupil was dilated, the boy was able to see as described above. Upon endeavouring to drill this membrane with a fine needle, it was found impossible to make any impression upon it, and it receded towards the fundus of the eye every time it was touched, and appeared to drag with it the ciliary margin of the iris. By a series of small operations, however, performed at different periods over a space of nearly fourteen months (for the patient was of a most inflammatory nature), we succeeded in making a number of apertures in this thin but tough membrane which retained the opacity in its place, until the latter was held by a stalk or pedicle next the outer side of the cornea. We then, assisted by Mr. Smiley, made an opening about a line and a half in length in the cornea, opposite this point of attachment. During the escape of the aqueous fluid, the opaque body rushed towards the opening; it was seized with a fine forceps, drawn through the incision, and its attachment divided with a scissors, the bit of thin semi-transparent membrane returned within the eye; and the usual treatment after operation resorted to. In a short time the same course was pursued with the other eye, and the boy now reads perfectly well with cataract glasses. In detaching or cutting through a piece of opaque capsule, such as that we have described, or an adventitious membrane closing the pupil, in which several operations are required, the needle cannot be made to work with effect when introduced at the same side of the cornea or sclerotic each time. These membranes, but particularly the cornea, act as the fulcrum of the lever into which the needle is converted

during part of these operations, and it must be introduced at different points, and even sometimes at the nasal side of the cornea, in order to cut, lacerate, or detach such an opacity existing or adhering at the external side of the pupil.

Salivation previous to Cataract Operations.—M. Tavignot recommends the employment of mercurial salivation previous to cataract operations. He is led to this from the favourable influence which it exercises over acute inflammation, iritis and keratitis, the most frequent causes of failure in operations, according to this author. He advises the operation to be undertaken as soon as the first symptoms of salivation appear, and he continues the mercurial action for two or three days afterwards, so that the ptyalism may be at its height by the time secondary inflammation would be likely to ensue(a). We have only to remark, that we think the practice in the operation for solution unnecessary, and in extraction most injurious. Mercury will not always prevent local inflammation, and we have known cases of violent syphilitic iritis occur, when the patient was actually salivated for another form of the disease. Mr. Tyrrell, whose practical observations on the subject we would recommend to the attention of our readers, very justly remarks, that mercury sometimes prevents the union of the section of the cornea, by checking the adhesive process. In some cases mercury is imperatively called for, but not as advised by M. Tavignot(a).

It is, however, possible that mercury may be necessary as a safeguard in the very violent operations for cataract by depression, reclamation, and solution, which we occasionally hear of being performed in Paris. Dr. Hays of Philadelphia, in commenting on this extravagant proposal, says very justly: "M. Tavignot must be a very unfortunate operator if iritis or corneitis usually occur after his operations for cataract, or even hæmorrhage into both chambers of the eye. We would respectfully submit whether it would not be advisable to adopt a different method of operating from that which he employs, rather than, for the insufficient reason he assigns, to subject patients to the evils of salivation. The fact that mercury is often efficacious in arresting inflammation affords slender reason for introducing it into the system to prevent the occurrence of that accident. The mercurialization of a patient will not protect him from the sequence of a badly performed operation."(b)

Cholesterine Cataract.—About six years ago, a butcher, aged forty years, consulted us for loss of vision in his right eye, the result of a blow received some years previously. Upon examination we found a hard cataract, of a remarkable yellow colour, and to all appearance of a calcareous nature. Certain portions of its external surface presented the brilliant metallic appearance known as gold-leaf cataract. From its singularity we had an accurate drawing made of it at the time, and then lost sight of the patient for some years. Twelve

(a) *L'Union Medicale*, August 5, 1847.

(b) *The American Journal of Medical Science*, for January, 1848.

months ago he again applied at the hospital, in great pain, and with the eye deeply inflamed, the result of a blow which he received upon the temple a few days previously in a drunken squabble, when, to use his own expression, his eye was burst. Upon examination we found that to a certain degree his opinion was correct, concussion and dislocation of the lens having taken place. The central nucleus of the lens was lying at the bottom of the anterior chamber, and a quantity of brilliant matter, like broken-up gold leaf, floated through the aqueous fluid, and adhered to the back of the cornea. When the eye had been at rest for some time, the greater portion of these particles subsided to the bottom of the chamber, but upon moving the eye, or on the patient's making any exertion, they floated upward, producing the appearance which we sometimes see in the fundus of the eye, and which, under the name of "sparkling eye," has recently engaged the attention of oculists. We had an accurate drawing made of the eye in this condition. The usual antiphlogistic treatment having failed to afford relief, and the pain being most intolerable, we agreed to extract the lens, and remove as much of the offending body as possible. As this very remarkable case afforded a rare opportunity for analyzing this peculiar form of cataract, Professor Aldridge carefully examined the case, and assisted us at the operation. We made an inferior section of the lower third of the cornea with Scott's extraction knife, which is well adapted for such cases, from the curvature on the back, and the little space which it occupies. During the incision a small eye-cup was held beneath the globe, in order to receive the lens, and other means adopted to preserve as much as possible of the substance we wished to analyze. As soon as the incision was completed, the great mass of the broken-up lens and the central nucleus immediately escaped, and the remaining fragments were removed with Daviel's scoop. Immediate relief was experienced; the wound healed by the first intention, but with rather a broad cicatrix. There was no adhesion or distorsion of the pupil. The globe did not collapse, but the vision had been for many years extinct.

We give the following account of the analysis from a letter of Professor Aldridge's: "You may recollect that previous to operation distinct and beautiful crystals were visible, attached to the interior of the cornea, similar to scales of yellow mica. These, during the operation, you scraped off at my request, and handed them to me, together with the extracted lens. The crystals referred to, when examined by the microscope, appeared under the form of rhombic plates. They were soluble in ether and hot alcohol, from the latter of which they recrystallized in cooling, and were insoluble in a solution of potash, which, however, removed their colour. The lens was anteriorly sprinkled closely with similar crystals, but when these were removed, by digesting with ether, the lens itself remained white and opaque. It was insoluble in water, alcohol, ether, or dilute acid, but readily dissolved when gently heated in a solution of potash, and was again precipitable by acetic acid. I think there can

be no doubt but that the crystals were chiefly composed of *cholesterine*, and that the cataract was due to the deposition of some proteine compound, and a distinct phenomenon from the crystallization of the cholesterine discovered upon its surface, and which was afterwards so manifest in the anterior chamber." Beside the general interest of this very curious case, there are two topics connected with it on which we would remark: First,—the value of having accurate drawings made of every remarkable case which occurs, even though at the moment no ultimate benefit, except that of representing a peculiar form of disease, may appear to be gained; and secondly,—the advantage which ophthalmic surgery must derive from the analysis of morbid products such as that described.

Persistence of the Membrana Pupillaris.—A case of cataract (so called), formed by the persistence of the pupillary membrane of Wachendorf, has been lately recorded in the Milan Gazette by Dr. Paolo Bernard. It occurred in one eye of a boy aged at the time of examination six months. The globes were perfectly normal, and the greyish opacity which presented within was mistaken for opacity of the capsule of the crystalline. The real state of the eye, however, was subsequently discovered; and, indeed, we only mention the case here on account of its having been mistaken for true cataract. There was a small opening in the centre of the membrane, and around this could be seen, says the relater, a number of vascular globules, similar to those mentioned by Cloquet in the pupillary membrane. No operation was required. Frictions of belladonna were used to the temple and eyelid three times a day, and calomel in small doses administered. Three days afterwards the membrane was found to be detached from the iris for two-thirds of its extent, and it was diminishing daily when the report was made(*a*). Instances of the persistence of the membrana pupillaris for even a later period than that specified in the foregoing case have been recorded by Ammon and other writers upon congenital defects of the eye.

Sparkling Eye.—In synchysis and certain forms of ophthalmic disease we sometimes observe, upon looking steadily into the depth of the eye, that there is a peculiar scintillating appearance exhibited. At times this has the appearance of small sparks of light, not unlike the phosphorescence which sometimes appears upon the surface of the sea, particularly when the water is agitated. Those brilliant sparks generally appear to rise up from the inferior surface of the eye, and fall down again in a description of shower. In two cases which we have had under our care, this appearance could be induced by any motion or exertion, when it very much resembled the look which a bottle of *eau de vie* presents when the gold leaf in it is shaken up. There are other appearances in the eye of a luminous character, with which this must not be confounded. In certain forms of anaurosis we can, particularly when the pupil is dilated, perceive a brilliant yellow appearance, with a metallic lustre, and of a spherical shape, lining

(*a*) *Gazetta Medica di Milano* for 26th December, 1846.

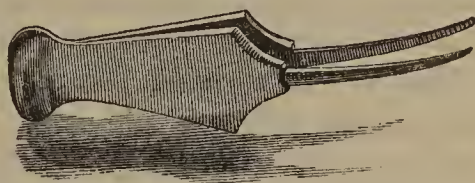
the fundus of the eye. At first view this might be taken for the early stage of malignant disease, but the history of the case, the age of the patient, and the attendant circumstances, will enable us to distinguish it from that affection, although at times the differential diagnosis is exceedingly difficult. The scintillations to which we have alluded may or may not be attendant upon this form of disease. The cause of these appearances has lately engaged the attention of several continental writers. M. Desmarres thinks that it is due to a peculiar morbid disposition of the hyaloid cells, which, being less distended than natural, on account of the fluidity of the vitreous humour, and floating one over the other, reflect separately, instead of refracting the light. M. Malgaigne considers that this phenomenon is owing to the presence of little foreign bodies floating in the vitreous humour, and put in motion during the movements of the eye. These he believes to be crystals of cholesterine, which reflect the light as they present themselves to it in several inclinations. M. Tavignot's opinion coincides with the latter. He says that he has collected some of these sparkling particles, and that they bore the greatest possible analogy to the corpustules of cholesteria sometimes found in the liquid of hydrocele. He does not know, he says, whether their chemical composition be the same, but he considers it probable; and he thinks that the crystalline capsule, from its serous character, at least upon one aspect, may give rise to a product similar to that produced by the tunic vaginalis(a). We incline to the opinion, that in a great many cases the sparkling appearances are caused by the chemical substance just alluded to; and we are the more induced to believe this from the examination of the gold-leaf cholesterine cataract already detailed at page 497; but there are other cases where the brilliant appearances do not present a palpable character like those just described, but appear as brilliant, evanescent scintillations of light, even in the anterior chamber.

New Iris Forceps.—We know of no operation (except lithotomy) for which so many and such complicated instruments are devised, as that of artificial pupil. The armamentarium chirurgicorum abounds with knives, scissors, hooks, single and double forceps, and all manner of ingenious contrivances of a like nature. We are not, therefore, surprised to hear of any new instrument invented for this purpose. Professor Beaumont, of Toronto, has lately invented a pair of forceps for detaching the iris from its ciliary margin in the operation by separation, or iridodialysis, instead of the ordinary hook employed in Europe. His reason for this innovation is, that in operating upon the dead subject, he “found the hook sometimes tear its way out of the iris, instead of detaching it;” and he fears that “the hook may possibly, in transfixing the iris, wound the capsule of the lens.” Now, in the first place, we never knew either of these accidents to occur in a properly performed operation on the dead or the living subject. There are two hooks in use at present

(a) *Revue Medico-Chirurgicale.* August, 1847.

for detaching the iris: the one most commonly employed in England is the blunt hook, bent at rather an acute angle with the shaft of the blade, and well described by Mr. Tyrrell. That employed by Jäger, and generally throughout the Continent, and which we invariably use, is sharp, with a more circular curve of the bend; it enters the iris with much greater facility than the blunt hook, but it requires considerable care and dexterity in its management, particularly in withdrawing it through the corneal incision. Whichever hook is used, as soon as it has partially detached the iris from the ciliary body, the handle should get a half turn, so that the flat of the hook may present against the inner surface of the cornea, to which it should be invariably applied upon withdrawing it. An operation so conducted cannot possibly be injurious to the lens or its capsule.

The instrument of Mr. Beaumont consists in a forceps slightly bent in the blades, and having the points furnished with a pair of fine curved teeth, with which he transfixes the iris while the blades are partially opened; the blades are then closed, and the iris, thus entangled in their points, is drawn through the wound in the usual manner. We think it answers anything but the intention required, and is very much inferior to any of the forms of hook(a). We have had some experience in a variety of forceps, and have latterly found the accompanying form, which was given us by Professor Rosas, and here represented the natural size, more useful for performing artificial pupil, withdrawing a bit of the iris, or removing a portion of capsule, than any other. It is as fine at the points as that invented by Mr. Dalrymple, and with a light hand can be used with much greater accuracy and delicacy.



Prolapsus of the Iris.—The ordinary myocephalon, or hernia of the iris, the result of a wound of the cornea, or penetrating ulcer, is frequently a most distressing symptom, and, in young children, where there is great irritability, lachrymation, and intolerance of light present, as well as exceeding timidity on the part of the patient, one very difficult to manage. If the protrusion is recent, it may frequently be reduced by the application of belladonna and atropine, and lessening excessive action locally; at the same time carefully avoiding all mechanical attempts at reduction. We usually cover up the eye for forty-eight hours after the accident, applying the belladonna as frequently as possible. With the rule laid down in books, of not applying the belladonna if the rupture has occurred near the edge of the cornea, we cannot agree, for if the iris dilates generally, it must of necessity tend to draw the small protruded portion within the chamber. If the iris has become adherent, all such attempts are fruitless; we must then direct our efforts to the removal of the hernia. Unless the patient is very steady, and will allow

(a) *Medical Gazette*, March 19, 1847; and *Braithwaite's Retrospect*, vol. xv, p. 322.

the operation to be performed quietly, and permit oil to be applied to the protrusion immediately afterwards, the use of the solid nitrate of silver is often injurious. Evacuating the fluid of the little sac with a fine needle can only be performed under like circumstances, as all rough handling, or forcible opening of the eyes, is injurious, and at times increases the mischief. When no progress has been made for more than the ordinary time, we have snipped off the protrusion with a curved, blunt-pointed scissors, and thus got rid of the cause of irritation. M. Desmarres has lately recommended *A New Method for reducing Iridial Hernia*, by cauterizing a spot upon the sclerotic conjunctiva, close to the corneal aperture, with solid nitrate of silver, the pupil having been previously placed under the influence of belladonna. By this means, he says, a very active inflammation of the vessels which feed the edges of the ulcer is induced, and by an increased secretion round the margin of the hernia it is set free, and drawn within the chamber. If one effort fails, he repeats the caustic several times. We have no experience of the practice, but intend to give it a fair trial(a).

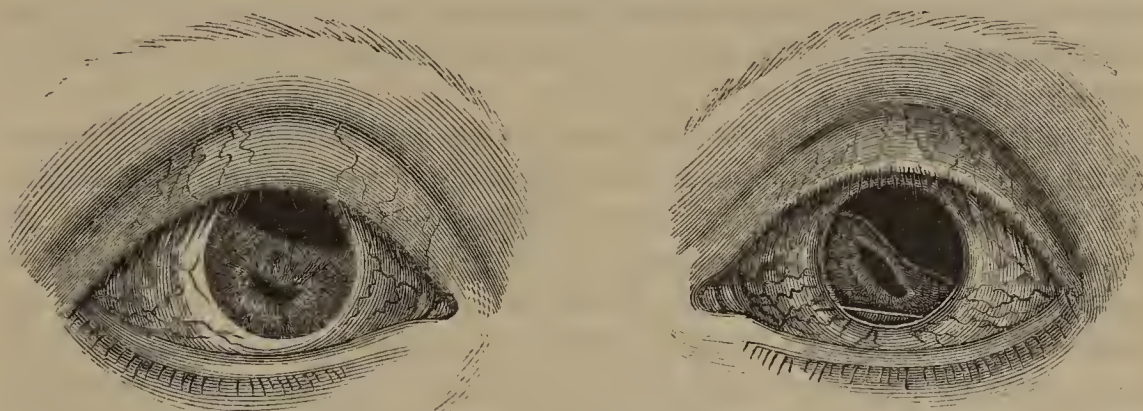
Iritis.—One of the latest communications upon this subject is a series of lectures delivered at the London Ophthalmic Hospital by Mr. Dixon(b), and to these we would particularly refer our readers. There is, however, one opinion of Mr. Dixon's, with which we think few ophthalmic surgeons will agree, it is that, "invaluable,—indispensable as belladonna is in our examination of many morbid states of the eye, I confess I do not regard its local employment as of any service in iritis, for an inflamed iris loses its power of motion;" and at a later period, when the iris is beginning to recover its motory function, he thinks it may do harm by forcibly dilating the pupil, and thus leaving upon the surface of the anterior capsule of the lens those small brown pigment cells which adhere to it from the uvea. How many cases, however, do we see, where no belladonna was used, in which these brown specks subsequently present upon the lens; and how many cases of permanent adhesion have occurred from the disuse of this valuable remedy? It is true that the iris is not, during a high state of inflammation, as susceptible of the influence of belladonna as in its normal condition; but this want of susceptibility is exceedingly various; and in some cases the iris will dilate, though inflamed. In many instances we are able to break up slight adhesions by the influence of belladonna and atropine. Those very brown spots to which Mr. Dixon refers may, if belladonna is not used, become permanent adhesions between the iris and lens, with permanent contraction and opacity. How many cases do we see in which those fuscous specks or patches present upon the capsule of the lens, as the sequelæ of internal ophthalmia, when the vision is unimpaired? Upon the whole we are strongly inclined to the opinion that much greater mischief may be done by

(a) *Traite Pratique*, and Ranking's Abstract, vol. vi. p. 285.

(b) The Lancet for March 4 and 18, 1848.

the general omission than the indiscriminate use of belladonna in all cases of internal ophthalmia. In every other particular Mr. Dixon's lectures are characterized by sound sense and great practical experience.

Injuries of the Iris.—In the sixth Number of this Journal (for May, 1846), Mr. W. W. Cooper detailed and figured an interesting case, in which separation of the iris from its ciliary attachment occurred in both eyes of the same individual, the result of injuries at



different periods. The accompanying illustration explains better than words the nature of the accident and the appearance presented.

Mr. H. L. Smith has related a somewhat similar case of false pupil, which also occurred at the superior attachment of the iris. "This false pupil," he says, "varies much in size, being scarcely observable when the natural pupil is dilated, but enlarging when the natural pupil contracts. The false pupil is also, though not to a great extent, affected by the application of belladonna." This latter, however, must occur from its general effect upon the iris.

Malignant Diseases of the Eye-ball.—While we have nothing particularly new to record on this subject, we must refer our readers to a most admirable paper of Mr. Lawrence's, reported by Mr. Holmes Coote in the Medical Gazette for June 2, 1847. This paper is illustrated by wood-cuts, showing the microscopic appearances exhibited in the different forms of malignant diseases of the eye-ball, made from drawings by Mr. Coote. One of the forms of disease described in Mr. Lawrence's communication consisted in a change of structure in the choroid membrane, accompanied by absorption of the retina, hypertrophy of the sclerotic, and general enlargement of the eye-ball. The eye was extirpated, and the following is the examination of the parts; it does not, we think, exhibit a decided evidence of malignancy,—either melanosis, fungus hæmatodes, or true cancer:—"The globe was filled with a diseased growth, moderately firm, partly yellowish, partly reddish, of considerable vascularity, without any trace of the normal structures: it was very much like what is frequently observed in a scrofulous testicle. If it had been seen detached, no one would have supposed that it had formed part of an eye. Upon careful examination, it was found that this diseased mass was choroid and iris, both of them much thickened, entirely altered in structure, and in great part deprived of their normal coating of pigment cells. In the middle of the eye there was a small cavity,

with smooth and darkish surface, containing a little dark fluid. This cavity was occupied by a mass consisting of the reflected iris: it had pushed forwards against the posterior surface of the cornea, and had been from thence reflected towards the centre of the globe. The sclerotic was much thickened, in some parts to the extent of a quarter of an inch, its texture being softer than usual. The cornea was extended and thin. At the extremity of the optic nerve there was a small shred of retina. The ulcerated spot upon the anterior surface of the globe penetrated the cornea, and opened into the anterior chamber. There was no trace of crystalline lens or ciliary processes."

We still require much information on the subject of malignant diseases of the eye-ball, and those affections which resemble them, and we think it incumbent on every surgeon who treats such to record the result of his experience. The following opinion of Mr. Lawrence is worthy of our strictest attention:—"I would not, however, represent to you that the state of a patient with fungus hæmatodes of the eye is absolutely hopeless. By the long-continued use of mercury the progress of the disease has been arrested in a few instances, and the morbid deposition has been removed. I had under my care a case of this kind, in which I saw the morbid deposit in its early state, in which the globe afterwards enlarged, and the lens became opaque. The employment of mercury, persevered in for many weeks, completely arrested the malady; and the patient, after remaining well for years, died of affection of the head, excited by development of disease in the brain."

At one of the meetings of the Pathological Society of London, Mr. Dalrymple "showed a series of preparations, accompanied with drawings of the various forms of malignant disease of the eye, in order to prove the utility of operative interference in any stage of such affections. The result of extended experience has convinced him that where the globe had been extirpated at the earliest possible stage of the disease, the death of the patient was brought about sooner or later by the formation of secondary tumours in the brain, in the same manner as when the globe had been extirpated at a more remote period of the disease."^(a) In our November Number Mr. Dalrymple published a valuable paper upon encephaloid disease, producing amaurosis, to which we would call the attention of our readers.

Mr. Hensley exhibited at the Bath Pathological Society a cast, and related a case of malignant disease of the eye-ball, the most remarkable circumstance attending which was, that after the destruction of one eye the other became affected^(b). Upon examination after death the entire contents of the cranium, and even the bones of the head, were found diseased.

[If our space permits, we will continue this Report in a future Number during the present year.]

(a) Medical Gazette, March 26, 1848.

(b) Provincial Medical and Surgical Journal, Nov. 17, 1847.

RETROSPECT

OF MATERIA MEDICA AND PHARMACY.

BY RICHARD AUSTIN, M. D.,

LICENTIATE APOTHECARY.

THE Editor intending, in a succeeding Number, to supply the readers of this Journal with a Report of Therapeutics, I have simply confined this Retrospect to those subjects of a purely pharmaceutical nature which appeared to me of the most useful and interesting character.

ADULTERATIONS OF DRUGS.

On a spurious Yellow Bark. By Dr. Jul. Martiny, of Darmstadt.—Dr. Martiny gives the name of Cortex Chinæ pseudo-regius, to a bark which has recently been introduced into commerce under the various denominations of China regia, China rubiginosa, China flava, and yellow-like China regia, &c. &c. The pieces generally measure from three to twelve inches in length, from one to four inches in breadth, and from two to five lines in thickness; only a few pieces, and these only in some places, are covered with the epidermis. The outer coat is usually of a silvery white, seldom of a brown colour, and very loose and spongy. It consists of thin, micaceous, and glittering laminae, usually of the thickness of common writing paper, which can be easily raised by a knife from the cortical substance. The coated parts are very similar to those of Carthagena bark. The predominating colour of the cortical substance is a faint yellowish brown, almost like clay; on a more close examination, however, great variety is discovered in the different pieces, the younger barks particularly displaying many reddish brown spots. The surface of the cortical substance is uneven, from the impressions of the coat; in the younger bark the frequently occurring longitudinal cracks, and the more transverse cracks, are marked by impressions and protuberances; in the older bark scutiform impressions are often noticed. The undamaged surface, if examined with the assistance of a magnifier, appears very smooth, but thickly and deeply spotted; the entire substance of the bark has a ligneous texture, is rather heavy, and towards the interior of a somewhat lighter colour: the interior surface is usually covered with an undamaged liber-like coat, and is very similar to yellow bark. The younger bark breaks longitudinally, not so easily as the older, and the fracture is shining and uneven. At the outward edge of the transverse fracture, the fibres are rather short and deep coloured, those on the inner edge are longer and considerably lighter: another distinguishing mark is, that on touching the bark the fingers do not in the least suffer from splinters. The cut surface of the spurious yellow bark shows thin fibres, and a dirty yellowish brown

colour; its smell is bark-like, its taste at first acid, and then very bitter and aromatic, somewhat like that of roasted coffee(a).

Spurious Cascarilla Bark.—Cortex Cascarillæ spuriosus consists, according to Holl, of quilled pieces, of about the thickness of the finger. It is yellowish grey outside, with longitudinal, but no transverse cracks, and is frequently covered with a lichen resembling *Verrucaria nitida*. Beneath the epidermis its colour is almost like that of the genuine bark, but its surface is rougher; the internal surface is deeper greyish brown, and the fracture less smooth; on examining a transverse section by a glass, fine dark brown glittering lines, marked with white, serpentine-like strokes, are seen passing from the interior edge towards the epidermis; the exterior lighter substance is, however, not strongly marked. In the genuine, the fine lines are much less distinct, and the exterior substance is distinctly separated from the interior by a greyish white stripe. The taste is similar to that of the genuine, but more disagreeably aromatic. Most reagents have the same effect as on the genuine, only a solution of sugar of lead produces, with the spurious cascarilla, a dark brown precipitate, and with the genuine a brownish yellow. There is no doubt but that the spurious bark belongs to a kind of croton(b).

On a very inferior Cinchona Bark found in Commerce. By Herr St. George, Apothecary in Giessen.—Since the discovery of quina, ash cinchona (*zen* or *jaen China*), called also pseudo loxa, has been entirely rejected on account of its being deficient in this alkaloid. It is, however, frequently met with in commerce. The outward appearance of this bark is remarkably fresh; and its colour is, on the whole, blackish slate grey, which is given to it principally by lichens which thickly coat it. Larger and more slightly adhering lichens are rarely to be found in it, whereas the genuine loxa is more frequently covered with them, by which it obtains a somewhat variegated appearance. The transverse cracks of the ash cinchona (*zen China*) are very short and close together; those of the genuine bark more annular and farther apart. Ash cinchona is only about a quarter of a line thick, on account of the thinness both of the cortex and alburnum (*splint*); whereas the loxa is at least half a line thick. For this reason, we find less entire and closed quills than such as are broken lengthways and blistered, by which the inner, and, for the most part, bright rust-coloured, or sometimes pale yellowish surface, is more exposed than in the quills of the other kind of cinchona. In this way the ash cinchona acquires its peculiar fresh appearance. Thin splinters of wood adherent to the internal surface are also frequently met with; when broken, the alburnum (*splint*) generally appears much brighter, and, when seen in opposition to the rust-coloured surface, is almost of a straw colour; whilst genuine loxa on breaking presents uniformly a

(a) *Pharm. Central Blatt*, No. 37, August 26, 1846; *Bell's Pharm. Journal*, vol. vi. No. 5, Nov. 1846.

(b) *Pharm. Central Blatt*; *Bell's Pharm. Journal*, vol. vii. No. 1, July, 1847.

cinnamon brown colour, and externally is dusty, and therefore appears less fresh. The transverse and oblique fracture of the ash cinchona gives no trace of resin; whereas the horn-like appearance of the cut surface of the loxa bark shows a considerable proportion of resin. A decoction of the ash cinchona does not become turbid on cooling; its taste is acidulous, very astringent, and not at all bitter; whilst the decoction of a very good cinchona becomes on cooling like coffee with milk, and has an acid, but less astringent, and very bitter taste. It is advisable to reject both sorts, to be the more sure of not obtaining the ash cinchona(*a*).

On some spurious Sorts of Opium. By M. Batka.—He states that some opium which he obtained consisted of pieces like that from Smyrna, strewed over, as is usually the case, with the flowers of Rumex, but not wrapt in leaves; it was as shining as the Egyptian, only of a darker colour. Having been for some time exposed to the air, it was almost without smell, very hard, without being stony; did not become soft in the hand, like genuine opium; felt like sand between the teeth; had a bitterish, but not bitter taste; glistened when broken, and mixed with many light spots like *resina garannæ*. When tested for resin by friction it showed no electricity, it carbonized in the flame without melting; and the smell which it then emitted had a remote resemblance to that of frankincense, as it also had when triturated or dissolved.

It was easily triturated, whilst the genuine opium becomes more or less viscid; its powder is brownish and dry; the cold watery infusion frothed strongly, as if from gum; the warm solution did the same; was reddish brown when held against the light, but became cloudy on cooling; litmus showed no reaction on the watery solution; by alcohol an abundant precipitate was thrown down from the filtered solution, in which litmus became red after standing for some time. The filtered watery solution, by evaporation, yielded gum, which burned to ashes; on burning the resinous residue it consumed with a sooty flame and resinous odour, leaving behind a coal, which glowed and incinerated, evolving a disagreeable smell, like that of animal glue. The result of a qualitative analysis was the following:—

25 per cent. of matter insoluble in water and alcohol, consisting of
7 per cent. of combustible matter, containing nitrogen and carbon.

18 per cent. of incombustible substances, viz., sand, traces of iron, lime, and lead.

64 per cent. of substances soluble in water = gum.

9 per cent. of substances soluble in alcohol = resin.

2 per cent. loss.

100:—without any trace of morphia or meconic acid.

(*a*) *Jahrb. für Prakt. Pharm.*, pp. 103-4; *Bell's Pharm. Jour.*, vol. v. No. 8, p. 370.

M. Batka states it was offered to him as a secondary sort, and that it had likely been kept with opium, as it had at first a smell of this substance, which it had afterwards lost.

Another sophistication, under the name of *Egyptian opium*, he states he saw in London, where he examined, under the denomination of unrated goods, a box with cakes of catechu, which were then imported, and consumed as Egyptian opium. The Egyptian opium has, as is well known, a dark brown, bright, glistening colour, and, by fracture here and there, lighter, orange-coloured, clouded spots. The opium which he saw, and which he recognised as a product quite similar to Bengal catechu, by the bitterish, and afterwards sweetish taste, resembled this opium perfectly, both externally and internally.

He also mentions another opium-like artificial product, which he received in London, under the name of *Dikki Malei*, from the Malabar coast of India, and states that Martius mentions an article similar to this, when speaking of the Smyrna opium, but quite different from what he received; this consisted of rather equally formed opium-like cakes, of two inches square, three to four inches thick, hard and dark, with spots on the surface like gum; when rubbed they developed a smell of sealing wax; the fracture was like that of guaiacum, greenish yellow, and resinous, with brownish, catechu-like spots. It had a peculiar astringent taste, sticking to the teeth, and leaving behind, when chewed, an orange yellow powder, which contained no rice flour, but only gum resin.

Merk observes, in his chemical diagnosis of opium, that the opium obtained under the name of Constantinople opium contains the greatest proportion of sulphate of morphia, and on that account M. Batka always uses the acetate of baryta as a reagent in the examination of opium, in order to determine qualitatively the best sort, as, in fact, only the best Smyrna opium reacts upon it; and the Patna, Benares, English, Grecian, and Egyptian opiums are, at the utmost, only clouded by it, but throw down no precipitate(a).

An easy Method of ascertaining the Genuineness of Guaiacum Wood. By J. H. Schuncke.—When a few drops of a solution of chloride of mercury are poured over some shavings of guaiacum wood in a test tube, and slightly warmed over a spirit lamp, a bluish green colour is immediately produced with all genuine samples. This test is easier than that by means of nitrous vapours, and is probably owing to the same cause as the colouring of guaiacum wood described by Schacht(b).

A new Method for detecting spurious Musk-Pods. By J. Moore Neligan, M. D., M. R. I. A.—Dr. Neligan states that it is now very generally known that musk is the peculiar secretion of a small sac situated immediately in front of the preputial orifice of the male musk animal (the *moschus moschiferus*); that it is principally

(a) Buchner's *Repertorium*, Bd. xiv. Heft. 3.

(b) *Archiv. der Pharm.*, No. 44, p. 178; *Chem. Gazette*, No. 80, Feb. 16, 1846.

imported into the British market from China; and that the Chinese squeeze out some of the secretion, which is fluid in the recent state, and mix it with, it is believed, the dried blood of the animal. This compound, which presents the same physical characters as true musk, they put into small sacs made of pieces of the skin cut off from other parts of the animal's body, and prepared so as almost to defy detection with the naked eye.

Dr. Neligan states that the method hitherto adopted for detecting this sophistication has been the peculiar position of the hairs, which are arranged in a circular manner around the orifice in the genuine musk-pod, and also the absence of any remains of the hairs in the artificial pods; but those characters are not invariable, as he has seen some spurious musk-pods which were so skilfully prepared as to be undistinguishable from the genuine article when compared with them.

The plan proposed by Dr. Neligan depends on the microscopic characters of the hairs which grow on the preputial sac of the musk animal, and which, as far as he has been able to detect by direct experiment, differ very remarkably from those of the false sacs which are met with in commerce; and that he had recently an opportunity of pointing out the test to Dr. Christison, of Edinburgh, from some specimens in Dr. Christison's museum: and he further states, that the character of the hairs may be readily understood by reference to an illustration which he gave of a hair from a genuine, and one from a false musk-pod. Hairs of the same size have been selected, and they were drawn as seen through a microscope of 300 diameters.

The difference appears to depend on the fact that the hairs of this part of the animal are furnished in the interior with distinct, regular, colour cells, while in hairs taken from other parts of the animal's body those cells appear to be obliterated, as is generally the case in this and the allied tribes of animals(*a*).

On false Batavian Musk-Pods. By Dr. E. Martiny.—Artificial musk-bags have been lately imported from Batavia into Hamburgh. Dr. Martiny describes them as follows:—The size of the bag, as well as its shape, is very nearly that of a walnut, but somewhat flattened. Externally the bag is covered with very fine hair, except at a small spot which covers the flattened surface. These hairs are from ten to fifteen lines long, very thin, soft, pale, greyish white at the root, and brownish grey at the point. They run regularly in one direction, cover smoothly the convexity of the bag, and are likewise cut off at the top near the flattened surface. The hair is as soft and brittle as that of the officinal musk-bag, but has not the undulating curve of the latter. Near the flattened surface the skin is repeatedly folded, and within these folds is also covered with hair; it is, therefore, quite clear, that a piece of the common animal's skin had been fastened upon some round body, and had been closely cut off at the top. On further examination it was observed that these bags

(*a*) Dublin Quarterly Journal, vol. i. N. S. p. 78.

had neither the usual opening of the musk-bag nor the remains of the penis.

After the bag had been kept for one night wrapped in a cloth moistened with water, the cutaneous covering became softened, and the folds near the flattened surface opened, so that it was impossible to examine the interior. The skin was about one line in thickness; the cutis (*Lederhaut*) was transparent, fresh, and showed no trace of decomposition, except that the hairs readily fell out. This skin is, perhaps, taken from some of those musk animals found in the East Indies (*moschus Javanicus*, *kantchil*, *meminna*, *pygmæus*), but which have no musk-bag. The cavity is filled up with some solid, light brown vegetable substance, having a faint smell and strong astringent taste. It is soluble neither in water nor in ether, but partly so in spirit of wine and in dilute muriatic acid. Chloride of iron, added to the light brown spirituous solution, gave it a blackish brown colour; solution of caustic potash dissolved the substance perfectly, and formed a dark, brownish red solution, but the colour was destroyed again by nitric acid(*a*).

We believe the most common adulteration of musk, when sold without the pod, is the addition of dark-coloured peat in powder.

On spurious Spermaceti. By M. Ulex.—This article was imported from New York under the name of *Solar spermaceti*, in snow-white square blocks, of a beautiful radiating fracture. It is hard, friable, not fatty to the touch, and possesses but a slight fatty odour. When one part of this substance is heated with three parts of alcohol of 0·863, a perfectly clear solution is obtained, which begins to crystallize at 99° F. The principal differences between the solar spermaceti(A) and genuine spermaceti(B) are:—Crystallization: A, radiate; B, laminar. Colour: A, dull white, slightly yellowish; B, transparent white. Specific gravity: A, 0·933; B, 0·943. Melting point: A, 131°; B, 113°. Alcohol of 0·821 dissolves entirely A, but only three and a half per cent. of B. Caustic and carbonated alkalies form soaps with A, not with B. The properties of the solar spermaceti agree essentially with those of margaric acid, which is probably obtained in America by the saponification of pork fat(*b*).

Detection of Stearine and stearic Acid in Wax. By E. Geith.—In examining wax it should be first tested for stearic acid. About two drachms of the sample to be examined are digested for some time in a flask with one ounce of lime-water and one ounce of distilled water, when the liquid, if stearic acid be present, loses its alkaline reaction. When the absence of stearic acid has been thus ascertained, one drachm of the sample of wax is boiled for a few minutes in a flask with two ounces of alcohol of 0·80 spec. grav., and the whole poured into one ounce of alcohol of the same strength. After a few hours the finely divided wax is collected on a filter, and washed with two

(*a*) *Pharm. Central Blatt*, No. 25, June 13, 1846; *Bell's Pharm. Journal*, vol. iv. No. 4, October, 1846.

(*b*) *Archiv. der Pharm.*, No. 46, p. 292; *Chem. Gazette*, No. 101, January, 1847.

ounces of the same alcohol. The wax on the filter is pressed between two porous tiles till nearly dry; it is then carefully transferred into a porcelain dish, and boiled with one drachm of carbonate of soda and six drachms of distilled water, stirring the whole time, until some carbonate of soda begins to form on the bottom of the dish; one ounce of alcohol of 0·80 is added to the warm mass, and the mixture stirred gradually, adding some ounces of alcohol of 0·50, until the insoluble portion is converted into fine powder. When it has become perfectly cold it is poured upon a filter, and adulcorated with alcohol of 0·50, until acetate of lead no longer produces any opacity; the whole is then evaporated to one ounce. The residue is filtered when cold, and washed with weak spirit. To further test the liquid, an excess of acetic acid is added to it; if the wax was pure, there is at the utmost only a faint opalescence, but if it contain stearine or stearic acid, a precipitate is formed, especially on shaking(a).

Mode of ascertaining whether Olive Oil has been sophisticated with Rape or Poppy Oil. By M. Diessel.—Pure olive oil is coloured green by ordinary nitric acid; on the other hand, one drachm of olive oil, sophisticated with rape oil and mixed with twelve drops of nitric acid, exhibited a strong yellowish grey colour. Comparative experiments with various mixtures of oil showed that this reaction was still perceptible, even with the addition of one-tenth. The adulteration with poppy oil is likewise easily detected with nitric acid, but the mixture then becomes yellowish white, and not brownish, as in the previous case. Pure nitric acid exhibits the reaction in a far less degree. Dr. Bley adds, that the samples must be judged of in the course of twelve hours after the addition of the nitric acid, as pure olive oil is likewise coloured more or less brown after a longer interval(b).

Adulteration of Iodine.—Herberger observes, that in consequence of the high price of iodine this substance is very frequently adulterated; thus in one specimen he found radiated black sulphuret of antimony. Still more deceptive is the adulteration with artificial plumbago. This, however, is easily discovered by volatilizing the iodine at a low heat, and afterwards applying a strong degree of heat with admission of air. In one case he found 51 per cent. of plumbago(c).

Another Adulteration of Iodine. By M. Righini.—The author having received some iodine from a merchant at Milan, the appearance of which excited his suspicion, he submitted it to examination; it was hard and compact, and attracted moisture when exposed to the air. It dissolved entirely in alcohol, and left no residue when treated with iron filings and water. On submitting some of it to sublimation, a residue was left, which presented the

(a) Buchner's *Repertorium*, No. 44, p. 153, and *Chem. Gaz.*, No. 113, July, 1847.

(b) *Archiv. der Pharm.*, No. 44, p. 287, and *Chem. Gaz.*, No. 101, Jan., 1847.

(c) *Jahrb. f. Prakt. Pharm.* No. 40, p. 35; *Chem. Gaz.*, No. 77, Jan., 1847.

character of chloride of calcium. Further examination proved that this salt was present to the extent of 25 per cent(a).

On an Impurity in commercial Bromine. By M. Poselger.—On distilling some commercial bromine the author found that its boiling point rose from 122° to 248°, and that the colour of the residuary bromine became more and more light, until at last a colourless liquid remained. On continuing the distillation to dryness, a slight residue of coal remained in the retort. The last and lighter portions were freed from bromine by means of water and a little potash, when they yielded a colourless, oily, aromatic liquid: this body proved, on analysis, to be a bromide of carbon. Different samples of commercial bromine contained from 6 to 8 per cent. of this bromide of carbon; and it is probable that it is formed from the ether employed in the preparation of bromine(b).

A new Method of removing Hydrocyanic Acid from the essential Oil of bitter Almonds. By Mr. R. D. Grindley.—The following is the plan adopted by him, which, he states, proved most satisfactory. The oil was mixed with an equal quantity of water, and digested in a water bath with binocide of mercury and small quantities of lime and protochloride of iron; time having been allowed for the decomposition of the acid, the whole was introduced into a copper retort, and subjected to distillation; the product consisted of pure hydruret of benzoyle, while bicyanide of mercury, benzoate of lime, chloride of calcium, and oxide of iron, remained in the retort, with benzoine and any excess of the ingredients employed: ten drops of this pure oil were administered to a rabbit without any injurious result, thus giving satisfactory evidence of the fact, that essential oil of bitter almonds, when pure, does not possess poisonous properties.

And Mr. Grindley states, that as numerous fatal consequences have arisen from the use of this article for domestic purposes, manufacturers of this article should give their attention to the subject, and endeavour to supply the public with a preparation at once perfectly harmless, and still possessing the agreeable flavour for which it is so highly esteemed(c).

Note on the Tests of the Purity of Balsam of Copaiba. By Mr. Redwood, Professor of Pharmacy to the London Pharmaceutical Society.—Mr. Redwood states that some of the tests which appear to have been most relied upon he believes to be quite valueless, and that he has no doubt that many samples of copaiba have been condemned as impure on very insufficient data. He also states that the three specimens of copaiba which he examined he knew to be genuine, and having proved by his experiments the inefficiency of the ordinary tests of its purity (viz. first, that one part of copaiba is soluble in two parts of absolute alcohol; second, that three parts

(a) *Journal de Chemie Medicale*, and Bell's Pharm. Journal, vol. vi. No. 4, p. 186.

(b) *Poggendorff's Annalen*, No. 71, p. 297.

(c) Bell's Pharm. Journal, vol. vii. No. i. July, 1847.

of copaiba form a clear solution with one part of solution of ammonia, sp. gr. .960; third, that one part of hydrate of potassa in two parts of water, mixed with nine parts of genuine copaiba, will form a transparent mixture, which will continue clear after moderate dilution with water or rectified spirit; fourth, that pure copaiba dissolves a fourth of its weight of carbonate of magnesia, with the aid of a gentle heat, and continues translucent; fifth, that one part of oil of vitriol, triturated with three parts of pure copaiba, forms a plastic, reddish mass), he states, it becomes an important question to determine whether there is any other less exceptionable method. The consideration of this question involves a reference to the natural history and chemical composition of the different varieties of copaiba met with in commerce. What is the substance to be tested; is it always the same, or do different specimens of it differ in their chemical and physical characters? The substance called balsam of copaiba is an oleo-resinous exudation, possessing most of the chemical properties of common turpentine; by distillation or saponification it may be resolved into a volatile oil and a hard resin. These exist in very different proportions in different samples of copaiba. Mr. Redwood has found the quantity of volatile oil to be twice as great in some samples as in others; and consequently thinks that there is probably no simple test for a substance so variable in its composition. The method which appears to him at all satisfactory with the view of estimating its purity and value as a therapeutic agent, is, first, to resolve it into its proximate constituents, and then to examine these separately with reference to their physical and chemical properties. He mentions that the proportion of volatile oil in different specimens of copaiba met with in commerce is in some cases as low as 30, in others as high as 60 per cent.; that this volatile oil has the same ultimate composition as oil of turpentine, with which it closely coincides in the action produced by most chemical agents, but its taste, smell, and other physical characters, afford means of distinguishing it from that or any other substance with which it is likely to be mixed.

The proportion of resin, which differs little from common resin obtained from turpentine, varies also to about the same extent as the volatile oil, and is considered to possess but little medicinal activity(a).

M. Dublanc proposes the following as a simple test for recognizing the purity of balsam of copaiba:

Allow a drop of the balsam to fall on sized paper; dry with a gentle heat the part of the paper impregnated with the liquid; during the evaporation of the volatile part we can recognise, by the odour, if the balsam has been mixed with turpentine, the volatile oil of the latter not evaporating, according to M. Dublanc, at the same time as that of the copaiba(b).

(a) Bell's Pharm. Journal, vol. vi. No 1, July, 1846.

(b) *Journal de Pharmacie et de Chimie*, vol. xi. p. 276.

ACIDS.

Advantageous Method of preparing Gallic Acid. By F. Mueller.—The author recommends Braconnot's method for preparing gallic acid, modified as follows:

He boils sixteen ounces of coarsely pounded, so-called heavy, blue galls three times with eight pounds of water in a tin saucepan, strains the decoction, and lets it stand for four months in a covered earthenware pan, at a temperature of 100°–122°, now and then replacing the evaporated water, and well agitating. The mould, as well as the crusts which form, are after this time collected on a filter, slightly washed with cold water, and dried, then boiled with four parts of water, filtered, and the residue well washed with hot water. The crystals which separate from the filtered solution, on cooling, are separated from the mother ley, slightly washed, dissolved in a little boiling water, and set aside to crystallize. The crystallized acid is collected on a filter, rinsed once or twice with water, dried, then digested for several days with three ounces of alcohol and one ounce of purified animal charcoal, heated to boiling, filtered, and evaporated at a very gentle heat. The still slightly-brownish crystals are again collected on a filter, rinsed with spirit, dissolved in three parts of boiling water, and set aside to crystallize. The crystals obtained were now of a beautiful white colour, silky lustre, and perfectly pure. The mother ley yielded, on evaporation, a small quantity of brownish yellow crystals. The produce in beautiful white gallic acid amounted to two ounces and a half; in another experiment three pounds of galls yielded eight ounces(a).

Preparation of Valerianic Acid. By Messrs. Cap, Louradour, and Blondeau.—The authors state in their Report, that M. Righini agrees with MM. Cahours, Dumas, and Dœbereiner, that the liquid oil of valerian is an oxyacid, the base of which is a ternary radical, which he calls valerianoïle. He shows that this oil is formed of two parts, the one fixed and unaltered by cold, the other congealed at a temperature below 32° Fahr.

The former of these, treated with magnesia, introduced into a retort with a solution of tartaric acid, and distilled, yields pure valerianic acid.

M. Righini, adopting a more economical process, submits an alcoholic solution of oil of valerian to a low temperature. The solid part (hydruret of carbon, stearoptine, or valerianine) is deposited, and the valerianic acid remains dissolved in the alcohol. The alcohol is separated by distillation, and the oleaginous valerianic acid remains. On treating the solidified portion of the oil of valerian with lime, and decomposing it with sulphuric acid, pure valerianic acid is obtained by distillation, the odour of which bears some analogy to English oil of mint.

(a) *Archiv. der Pharm.*, No. 46, p. 153; *Chemical Gaz.*, No. 90, July, 1846.

M. Lepage, of Gisors, has proposed the following process for obtaining valerianic acid:—He macerates valerian root, well bruised, with water acidulated with from 300 to 400 grains of sulphuric acid to every thirty-two ounces of the root operated upon; it is afterwards pressed, and the liquor saturated with carbonate of lime (added in small quantities at a time, until effervescence ceases, and the liquor no longer reddens litmus paper; it is then put over the fire, and constantly stirred until it boils. The liquor is filtered while hot, and evaporated over a water bath until it attains a syrupy consistence. Crystals of valerianate of lime are formed on cooling, which are not removed for several days, and which may then be pressed and purified by animal charcoal to render them white. On decomposing this valerianate of lime with oxalic acid, valerianic acid is obtained in a diluted state. Messrs. Cap, Louradour, and Blondeau state that they have repeated this process with the greatest care, but were not able to confirm the statement of M. Lepage(*a*).

On the Preparation of Valerianic Acid. By Dr. Aschoff.—On distilling fifteen pounds of valerian root, with the addition of diluted sulphuric acid, the author obtained eighteen drachms two scruples and a half of oily valerianic acid; and the aqueous liquid was still so strongly acid that it saturated several ounces of soda. The author obtained nearly the same result in a second experiment. The residue in the still was mixed with four ounces and a half of sulphuric acid, and again distilled; the acid product saturated five ounces of carbonate of soda. After evaporation the residue was mixed with a corresponding quantity of sulphuric acid, and then yielded, on distillation, two ounces and a half of a mixture of acetic and formic acids. On separating these two acids by peroxide of mercury, the greater portion was found to consist of acetic acid. The amount of acetic acid is still further increased when the root is digested with water for thirty days previous to distillation; when, on the contrary, the root is placed for one or two days with water in a cool spot, and then distilled, as large an amount of oily valerianic acid is obtained as in the first mode of preparation, and it is free from any foreign admixture. Dr. Aschoff found that most acid is obtained from the root gathered in the spring from dry localities, when kept a few months. When the whole of the valerianic acid has been removed by distillation of the root with water, the contents of the still always exhibit a strong acid reaction, arising from the presence of a resinous substance and free malic acids. The formic and acetic acids are combined with lime in the root, and consequently the addition of sulphuric acid is not to be recommended(*b*).

Test for Sulphureous Acid. By M. Heintz.—The following very characteristic test is recommended by M. Heintz for detecting the minutest trace of sulphureous acid. The substance to be examined, dissolved in water or hydrochloric acid, is heated with a solution

(*a*) *Journal de Pharmacie et de Chimie*, vol. ix. p. 97.

(*b*) *Archiv. der Pharm.*, No. 48, p. 275.

of protochloride of tin in hydrochloric acid, until the solution boils. If the solution contains much sulphureous acid, sulphuret of tin will be precipitated; if, on the other hand, the sulphureous acid was present only in a minute quantity, there will be no precipitate formed, the liquid will be but slightly coloured yellow, and it will acquire the smell of sulphuretted hydrogen. The addition now of a few drops of solution of sulphate of copper will immediately afford a brown precipitate of sulphuret of copper.

This method of detecting the presence of sulphureous acid, it will be perceived, is but a modification of that proposed more than fifty years ago by Pelletier, and since recommended by M. Girardin(*a*).

Concentration of Commercial Nitric Acid.—Mr. Redwood states, that as some of the preparations of the Pharmacopœia require nitric acid, sp. gr. 1·5, it was desirable to be able to obtain it readily, as it is very prone to undergo decomposition when exposed to the light, and therefore ought to be made in small quantities when required. The process which he recommends is that described by M. Millon some years ago. It consists in distilling the commercial nitric acid, sp. gr. 1·42 (mixed with its own volume of oil of vitriol), by the heat of a sand-bath cautiously applied, by which a quantity of acid, equal to two-thirds of that of the nitric acid introduced, might be drawn over, and that this acid would have a specific gravity 1·514 to 1·52. Mr. Redwood states that Millon and other chemists had stated that the nitric acid thus obtained was always contaminated with sulphuric acid; but he (Mr. R.) had found, from repeated experiments, that if care was taken not to apply more heat than was necessary to bring over the nitric acid, and not to push the distillation too far, the distilled acid was quite free from sulphuric acid, and was in every respect as pure as that made by the process of the Pharmacopœia; and that in some respects this process possessed advantages over that of the Pharmacopœia, viz., that the acid produced was stronger, and less coloured by nitrous acid(*b*).

On the Presence of Chloride of Lead in Commercial Muriatic Acid. By Dr. A. Vogel, Jun.—The usual impurities hitherto detected in muriatic acid are, for the most part, derived from the sulphuric acid, which is used for decomposing the common salt. They consist of sulphureous, sulphuric, and nitrous acids, chlorine, and chlorides of arsenic, tin, iron, and even selenium.

Dr. Vogel found, that a commercial muriatic acid contained none of the above-mentioned impurities, with the exception of slight traces of chlorine and iron, but that it always gave a black precipitate with sulphuretted hydrogen, which arose from the presence of a large portion of chloride of lead. When diluted with water, small crystals of chloride of lead were gradually formed, for this

(*a*) *Journal de Pharm.* ; Bell's Pharm. Journal, vol. v. No. 10, April, 1846.

(*b*) Bell's Pharm. Journal, vol. vi. No. 7, December, 1846.

substance is more soluble in concentrated than in diluted acid. The chloride of lead (which amounts to about 1 per cent. of the acid) is to be ascribed to the circumstance of the common salt having been decomposed, and the acid distilled, in leaden vessels, which are in use in several manufactories(a).

New Test for Prussic Acid. By Professor Liebig.—The behaviour of the higher sulphurets of ammonium towards prussic acid furnishes an admirable test for this acid. Two or three drops of a prussic acid which has been diluted with so much water that it no longer gives any certain reaction with salts of iron, by the formation of prussian blue, when mixed with a drop of sulphuret of ammonium, and heated upon a watch-glass until the mixture has become colourless, yields a liquid containing sulphocyanide of potassium, which produces, with persalts of iron, a very deep blood-red colour, and with persalts of copper, in the presence of sulphureous acid, a perceptible white precipitate of the sulphocyanide of copper(b).

The Acid of Elder Berries. By M. A. Thebierge, of Versailles.—M. A. Thebierge, on making an analysis of the juice of elder berries, found that it contained a large proportion of citric acid. The following is the method by which he states it can be easily procured. The clear juice is treated, while cold, with chalk, then rapidly filtered through fine linen; the citrate of lime, nearly white, is precipitated in the course of an hour or two, and furnishes sufficiently consistent plates. The precipitation can be assisted by means of gentle ebullition.

The citrate is decomposed by weak sulphuric acid; the liquid, when filtered and concentrated, affords crystals of citric acid(c).

ALKALOIDS.

Quinoidine and amorphous Quina.—These substances having latterly excited considerable interest among pharmaceutical chemists, as regards their importance as cheap substitutes for the ordinary sulphate of quinine, we subjoin the following method of their preparation, as described by the patentee, Mr. Bullock, of London.

Preparation of purified Quinoidine, or Chinoidine.—Take three pounds of the residue of quina manufacture, termed chinoidine (which should be soluble in alcohol and in dilute sulphuric acid, and insoluble in water); nine ounces, by measure, of concentrated sulphuric acid diluted with one gallon of water; and, dissolving the chinoidine therein, pass sulphuretted hydrogen through the solution. In nine hours (for the purpose of precipitating metallic matters and other impurities) filter the mixture through paper, then boil to drive off excess of sulphuretted hydrogen; add an alkali or alkaline carbonate, to precipitate the chinoidine: if an alkaline car-

(a) Buchner's *Repertorium*, 2 R. Bd. 37, pp. 313, 315; Bell's *Pharm. Jour.*, vol. v. No. 12, June, 1846.

(b) Liebig, *Annalen*.

(c) *Journal de Pharm.*, vol. xii. p. 178.

bonate, add three pounds of carbonate of soda dissolved in one gallon of distilled water. Wash well the precipitate thus obtained with distilled water, and dry it over a water bath; towards the conclusion of the drying, place it in a chloride of calcium bath, and heat it a few degrees higher than 212° : reduce it to powder, and keep it in well-stoppered bottles.

Preparation of amorphous Quina.—Take three pounds of chinoidine as before, or in the purified state, as above described (for this purpose it is well to use it before it is fully dried); mix it well with twice its weight of pure sand, and digest it in nine parts of sulphuric ether, specific gravity $\cdot 735$; stir the mixture three or four times during the digestion, which should continue for twelve hours, and pour off the solution. To the residue add nine parts of fresh ether, and proceed as before; mix the two solutions, and allow them to settle. When perfectly bright, pour off the fluid from the sediment into a retort or suitable vessel, and distil off the ether by means of a water bath. The substance left in the vessel is to be dried in the same manner as is directed for the purified chinoidine(a).

On Aloetine. By M. E. Robiquet.—To obtain the aloetine or purified aloes, commercial aloes, reduced to powder, was exhausted with cold distilled water. This solution was evaporated over a water bath until reduced to one-half, and an excess of neutral acetate of lead was then added, which threw down a light, flocculent, yellow precipitate. On adding a sufficient quantity of ammonia to the supernatant solution, the precipitated oxide of lead carried down all the aloes contained in the liquor, forming a kind of lake, of a pure orange yellow colour, passing in a few minutes, under the influence of the solar light, to a greenish yellow. This lake quickly separated, and, washed with boiling water, was decomposed by a current of sulphuretted hydrogen, atmospheric air being excluded. On the conclusion of this operation the sulphuret of lead was covered by a perfectly colourless supernatant solution, which, on being carefully decanted, and evaporated *in vacuo*, afforded no crystals, but dried in scales, having the appearance of a kind of varnish, with a very slight tint of yellow. Aloetine thus obtained is in the form of nearly colourless scales, if the atmospheric air has been as much as possible excluded. It is very soluble in water and in alcohol, little soluble in ether, and completely insoluble in the fixed and essential oils. If the aloetine be dried in contact with air, the scales, instead of being colourless, will have an intense red colour, due to a slight absorption of oxygen; but, with the exception of the difference in colour, it undergoes no modification in its chemical properties. The process may be rendered, therefore, much more easy by drying the product over a water bath, when it is not desired to obtain the aloetine in a state of absolute purity. Aloetine possesses in a high degree the purgative properties and bitter taste of ordinary aloes.

For medicinal use eight parts of aloetine are equivalent to ten parts of genuine Socotrine, and fifty parts of Cape aloes(*a*).

A new and economical Method for the Extraction of Strychnia. By M. J. P. Molyn.—Mix nine pounds of nux vomica, in coarse powder, with water, so as to form a thin paste. Keep this at a temperature of from 68° to 78° Fahr. for several days, when fermentation will manifest itself by the disengagement of a large quantity of carbonic acid. The mixture is to be daily stirred, so that the whole of the powder may be exposed to the fermentation. (M. Molyn thinks that when the mashed seeds are previously boiled for two or three hours, so as more completely to dissolve the gummy matter, the process is abridged.) The fermentation is completed in eighteen or twenty days, and is indicated by the cessation of the disengagement of gas. The mixture is then passed through a hair sieve and pressed. The residue is boiled two or three times, according to the quantity of water employed. The liquids are left to become clear by deposition, and are then evaporated to about three gallons; then add nine ounces of quick-lime in powder, well-stirring the precipitate; let it stand for six or eight hours, then separate the precipitate, and submit it to strong pressure. Heat the liquid to the boiling point, and add a slight excess of sulphuric acid; sulphate of lime is formed, which is allowed to subside, and the supernatant liquor is evaporated to about four pints; to this one ounce of powdered quick-lime is added, and the process above described repeated. The precipitate resulting from this process is pressed and added to the former; they are then dried and reduced to a fine powder. This powder is digested in about ten pints of proof spirit, with a gentle heat. The spirit dissolves the brucia, the colouring matter, and a little of the strychnia, which may be recovered by evaporating the liquid and allowing it to crystallize. The precipitate, thus freed from brucia and colouring matter, and reduced to powder, is digested twice, in ten pints of spirit of wine, specific gravity .823. The solutions, which are nearly colourless, are filtered, and four-fifths of the spirit recovered by distillation. On allowing the remaining solution to cool and stand for a day, the strychnia will be found at the bottom of the vessel in the form of a white, crystalline powder, in a yellowish supernatant liquor. The liquor is to be decanted off, and the strychnia washed with proof spirit, which removes any remaining portion of brucia, and renders it chemically pure by one crystallization(*b*).

Test for Strychnia. By Mack.—Marchand has shown, in the *Journal de Pharmacie et de Chimie*(*c*), that when strychnia is rubbed with peroxide of lead and sulphuric acid containing some nitric acid, it is immediately oxidized and a blue pigment formed, which becomes violet, then gradually red, and after a few hours yellow.

(*a*) *Journal de Pharmacie*, and Bell's Pharm. Jour. vol. vi. No. 7, Dec., 1846.

(*b*) *Jour. de Pharmacie d'Anvers*, and Bell's Pharm. Jour., vol. vi. No. 10, April, 1847.

(*c*) Sept., 1843, p. 200.

This test is so delicate that one-thousandth of a grain of strychnia can be discovered by it : but as peroxide of lead is not usually found in chemists' shops, Mack substituted peroxide of manganese, and obtained similar results. With this test strychnia can be detected in powdered nux vomica. If diluted nitric acid be applied to the powder or to strychnia, and to these be added some finely powdered oxide of manganese, and afterwards a few drops of oil of vitriol, a dark blue colour is instantaneously produced, but it soon changes to violet, then to pink, and at last to yellow. On heating the mixture, the phenomena occur much more rapidly. With brucia, morphia, narcotina, and quina, no change was produced ; and with strychnia the blue, violet, and red colours could not be produced, when chlorate of potassa was substituted for peroxide of manganese, because, probably, the chlorine effects other changes in the organic matter, not oxidizing, but rather dehydrogenizing it(*a*).

Test for Strychnia. By Otto.—Instead of the brown peroxide of lead, Otto employs a small quantity of a solution of chromate of potash, which, added to a solution of strychnia in concentrated sulphuric acid, produces immediately a magnificent violet colour, and much more distinctly and more beautifully than the brown, pulverulent, hyperoxide of lead(*b*).

Researches on Gentianine. By Dr. Baumert.—Gentianine was first considered to be the bitter and medicinal principle of the gentian root, and subsequently, after it had been prepared by Tromsdorff pure and free from the bitter principle of the root, it was looked upon as a colouring substance, and called by Lecomte *genticine*. The following investigation makes us acquainted with the composition and chemical nature of this body. To prepare it the gentian root was first freed from a portion of the bitter extract by exhaustion with cold water, then dried again, and extracted with alcohol. On removing this by distillation, a brown, resinous mass, of an excessively bitter taste and acid reaction, remains. On pouring water over it, light brown flakes separate, while the bitter principle, the acid, sugar, &c., dissolve in the water. The precipitate thrown down by water from the syrupy residue is purified as much as possible from the bitter substance by washing ; it then contains gentianine, a caoutchouc-like substance, fat, and still some of the bitter principle. The fat is removed by treatment with ether, and the residue again dissolved in strong alcohol, which, upon evaporation, leaves a crystalline mass, still possessing a bitter taste, and containing a mixture of resin. The gentianine is at last obtained pure by frequent crystallization, in light, yellow, acicular crystals, as the gentianine is somewhat soluble in water, and still more so in ether. Only one drachm of gentianine was obtained from twenty pounds of the root, but even this amount was greater than that obtained ac-

(*a*) Buchner's *Repertorium* ; Bell's Pharm. Journal, vol. vi. No. 4, Oct. 1846.

(*b*) *Pharm. Central Blatt.*, Dec. 30, 1846 ; Bell's Pharm. Journal, vol. vi. No. 10, April, 1847.

according to the process advised by Lecomte, which is based upon the fact that the gentianine is not precipitated by the neutral acetate, but only by the basic acetate of lead, so that a great portion of the impurities can be removed by a solution of the first salt.

Gentianine crystallizes in slender, pale yellow, tasteless needles, and is very sparingly soluble in water, and dissolves best in boiling alcohol. Gentianine has no reaction upon the vegetable colours; it is a neutral or indifferent body, which combines with acids and bases without parting with the elements of water(a).

An advantageous Method for preparing Nicotine. By M. Schloesing.—Tobacco is treated with water, and the solution concentrated. The extract is dissolved in alcohol, which, after decantation, is likewise concentrated. The last extract is now treated with potash, then agitated with ether, which dissolves the nicotine, and also some foreign substances, which are got rid of by precipitating the alkaloid in the state of oxalate. This precipitate is washed by agitating it with ether, then treated with potash, again dissolved in ether, and submitted to distillation. The residue of the distillation is coloured, but limpid, and contains, besides nicotine, water, ether, and ammonia. A temperature of 284° , maintained for twelve hours, and assisted by a current of dry hydrogen, suffices to expel these three bodies, so that the nicotine passes pure and colourless, when the temperature is subsequently raised to 356° . Two pounds of good tobacco are capable of yielding by this process from an ounce and a half to an ounce and three-quarters of nicotine(b).

On an Impurity occurring in commercial Aqua Ammoniacæ. By Douglas Maclagan, M. D., F. R. S. E.—Dr. Maclagan states that, having had occasion to add nitric acid to a fluid containing an excess of ammonia, he was perplexed by observing that the liquid assumed a deep red colour passing to purple. He at first suspected that it was owing to some impurity in the nitric acid, and repeated the experiment with some pure nitric acid, which he prepared himself, and a similar result followed. On mentioning the circumstance to Dr. Anderson, he assisted him in making some experiments to determine the nature of this impurity, and they found it was owing to the presence of a considerable amount of the volatile substance called *pyrrhol*, discovered by Runge, and a portion of what was probably naphthaline.

The following were the experiments to which this impure aqua ammoniacæ, which was quite colourless, was subjected :

1st. The addition of an excess of nitric or sulphuric acid caused a rapid red coloration, passing into a purple.

2nd. The ammonia was supersaturated with muriatic acid, and a clean shaving of fir-wood inserted into the fluid; it speedily became dyed of a rich purple. This is characteristic of *pyrrhol*.

3rd. A portion of the ammonia was supersaturated with sulphuric acid and distilled. The distilled liquor had a marked odour of naphthaline; and crystalline-looking particles (apparently of this

(a) Liebig, *Annalen*, No. 62, p. 104.

(b) *Compt. Rend.*, Dec. 21, 1846.

substance) floated in it. It was tested by muriatic acid and the fir-wood, and gave very strongly the colour characteristic of pyrrhol.

4th. The residue of the distillation in last experiment, which, of course, contained all the ammonia in combination with the sulphuric acid, was mixed with a small quantity of caustic potash. The smell of picoline was distinctly perceived.

Dr. Maclagan states that it is easy to see how these impurities come to be present in the ammonia. It is well known that most of the ammonia of commerce is derived from the watery liquor of gas works, from which it is prepared by converting it into sulphate or muriate, and decomposing the salt so obtained by lime. In the preparation of this impure aqua ammoniæ, it is obvious that this process has not been followed. The manufacturer, in order to save the expense incurred by converting it into sulphate or muriate, has contented himself with procuring it by direct distillation, and thus it contains the other volatile ingredients of the gas liquor. It is hardly necessary to say that such aqua ammoniæ is quite unfitted for chemical or pharmaceutical purposes(*a*).

Since we read this paper, suspecting from the odour of some aqua ammoniæ in our possession, that it contained the impurities above described, we repeated Dr. Maclagan's experiments, and found it to afford the same reactions as the Doctor has detailed.

ALKALINE, EARTHY, AND METALLIC SALTS.

M. Dupasquier having experienced the therapeutic value of the iodide of iron when in the state of protiodide, M. C. Callaud proposes the following method of obtaining this salt by double decomposition:

Take one part of crystallized sulphate of protoxide of iron, 161·52; one part of iodide of potassium, 206·94; reduce each salt separately into a fine powder, and triturate the mixture of the two salts; then treat it with alcohol at 85° per cent., which only dissolves the iodide of iron that is formed. The alcoholic solution has all the characters of the protosalts of iron. He states that the following formula may answer better for certain pharmaceutical preparations having iodide of iron for a base.

Take three parts crystallized sulphate of protoxide of iron, four parts of iodide of potassium: mix as before.

It is important to choose the sulphate of iron in small translucent crystals, which exactly represent the protosalt with seven proportions of water. The iodide of potassium ought to be perfectly neutral and pure. To be satisfied of the purity of the substances, the mixture of the two salts, when dissolved in distilled water, should not afford a greenish or yellow-coloured tinge in the mixture, which would indicate the employment of a basic iodide of potassium, or a sulphate of iron partially peroxidised. He also re-

(*a*) Monthly Journal of Medical Science; Bell's Pharm. Journal, vol. vi. No. 1, July, 1846.

commends the following formulæ for this salt in the form of pills, tincture, and wine:

Pills of Protiodide of Iron.—

	Gram.(a)	Cent.
Crystallized protosulphate of iron,	1	60
Iodide of potassium,	2	10
Gum tragacanth,	0	30
Sugar,	1	00

Syrup sufficient to form the mass into thirty-six pills. Each pill contains fifty-two millegrammes of dry iodide of iron, and twenty-six millegrammes of sulphate of potash.

Tincture of Protiodide of Iron.—

	Gram.	Cent.
Crystallized protosulphate of iron,	0	80
Iodide of potassium,	1	10
Alcohol at 85° per cent.,	16	00

Triturate the two salts as before, dissolve the iodide of iron in the alcohol, and filter. It is then to be kept in a well-stoppered bottle completely filled. A small excess of iodide of potassium gives it more stability; sixteen grammes of the tincture contains eighteen grammes of iodide of iron.

Iodide of Iron Wine.—

	Gram.	Cent.
Crystallized protosulphate of iron,	0	80
Iodide of potassium,	1	10
Sherry wine,	32	00

The two salts being finely powdered, add a few drops of wine to the mixture, quickly triturate it, and dissolve in the rest of the wine, and filter.

Thirty-two grammes of the wine contain eighteen grammes of protiodide of iron, besides a little sulphate of potash. Keep it in a well stoppered bottle completely filled. All these preparations by double decomposition being easily and quickly prepared, need not be kept ready made(b).

On a new Method of preparing Lactate of Iron. By M. Lepage.—The author proposes the following plan for the preparation of this salt, which yields satisfactory results, and is much more expeditious than the old process:

Lactate of lime,	100 parts.
Boiling water,	500 do.

Dissolve and filter.

Next dissolve sixty-eight parts of pure crystallized sulphate of

- (a) The gramme, $15\frac{1}{3}$ grains Troy.
- Decigramme, $1\frac{1}{2}$ „
- Centigramme, $\frac{1}{6}$ „
- Millegramme, $\frac{1}{75}$ „

(b) Medical Gazette and Clinical Gazette.

iron in 500 parts of distilled water, and filter; mix the two solutions in a flask, and slightly acidulate the mixture with lactic acid. The decomposition may be aided by a gentle heat, and when this is accomplished, the liquid may be filtered to separate the sulphate of lime, and afterwards rapidly evaporated in an iron or porcelain vessel; if the latter be used, some iron filings must be added. When its bulk is reduced to one-half, it may be again filtered and allowed to crystallize. The mother liquor, decanted and carefully evaporated, will yield a fresh crop of crystals. These may be collected on a funnel, washed with a little alcohol, and dried on blotting paper. The salt thus obtained is quite white and its solution in distilled water is not affected either by nitrate of baryta or oxalate of ammonia(a).

On the Preparation of the Lactate of the Protoxide of Iron. By M. Cassebaum.—He prepared the protolactate of iron by pouring twelve ounces of water over one ounce of milk sugar and the same quantity of iron filings, and digesting the liquid, heated to 86°, with a piece of the inner membrane of a pig's gut, about the size of the hand(b).

Easy Method of preparing Iodide of Potassium.—M. Pypers subjects to a moderate heat a mixture of 100 parts of iodine, 75 of carbonate of potash, 30 of iron filings, and 120 of water. The mass is to be dried, and then heated to redness; the resulting reddish powder is to be treated with water, and the solution obtained, filtered and evaporated to dryness. 100 parts of iodine yield 135 of very white, but slightly alkaline, iodide of potassium(c).

On the Preparation of Valerianate of Zinc. By MM. Frederking, Henny, and Dumesnil.—Frederking distils twelve pounds of valerian root with forty-five pounds of water; when twenty-five pounds have passed over, hot water is again added to the residue, and this repeated as long as the distillate reddens litmus. The fifty pounds of liquid which pass over are heated nearly to boiling, and then three ounces of crystallized carbonate of soda, dissolved in nine ounces of water, are added, so that the liquid presents a slightly alkaline reaction. The liquid is now evaporated to four pounds, and then separated by filtration from a resinous residue, which was again exhausted with three drachms of crystallized carbonate of soda, and twelve ounces of boiling water. The filtered solutions are now evaporated to eight ounces, along with three ounces of sulphate of soda, to raise the boiling point, and nine drachms of sulphuric acid added to saturate the carbonate of soda employed in excess, and distilled to dryness, when at first a limpid fluid passes over, and subsequently the hydrated acid; the latter is dissolved in water, and boiled for two hours in a retort, with recently precipitated carbonate of zinc, filtered, the residueedulcorated, and the filtered solution evaporated in a retort. The liquid which now passed over still saturated fifty grains of hydrate of baryta, from which four scruples of valeria-

(a) Chem. Gaz. No. 82, March 16, 1846.

(b) Archiv. der Pharm., No. 44, p. 263.

(c) Jour. de Chimie Med.

nate of quina were obtained with sulphate of quina. The concentrated solution of the valerianate of zinc, removed from the retort, was further evaporated in a dish, collecting on fine linen the saline pellicle as it appeared, which was then pressed between blotting paper: the residue, evaporated to dryness, yielded a somewhat coloured salt. With the above quantity of valerian root, six to seven drachms of zinc salt may be obtained(a).

Preparation of Valerianate of Zinc. By M. Lefort.—The following is the process which he states he found most successful for obtaining the salt :—

Valerian root,	. . . . .	2 $\frac{2}{3}$ lbs.
Water,	. . . . .	13 $\frac{1}{3}$ „
Sulphuric acid,	. . . . .	3 „
Bichromate of potash,	. . . . .	2 „

Macerate for twenty-four hours the valerian, coarsely powdered, the water, sulphuric acid, and bichromate of potash, in a retort, and distil; return into the retort the first quart of water distilled; continue the distillation until it no longer reacts on litmus paper. The product is then placed in a porcelain vessel with an excess of pure hydrocarbonate of zinc; digest for two or three hours in a sand bath to 90°; evaporate the liquid (filtered whilst warm) until not more than a pint remains; then continue, with a gentle heat, the evaporation to dryness. By this method M. Lefort states he has obtained from four to five drachms of valerianate of zinc from 2 $\frac{2}{3}$ pounds of the root. He farther states that the root should be recently dried when used for this purpose, as he was unable to obtain the same quantity from the old root(b).

Adulteration of Valerianate of Zinc. By M. M. Larocque and Huraut.—For some time past a substance has been sold at Paris, under the name of valerianate of zinc, which is nothing more than butyrate of zinc. It resembles the valerianate to such a degree in its physical properties, that it is impossible to distinguish them. In its chemical properties it is somewhat allied also to the valerianate, as, like it, when treated with a strong acid it yields a volatile fatty acid, of a strong, disagreeable odour, which forms with baryta a salt soluble in water and alcohol, possessing the singular property of rotating with rapidity on the surface of the water, and producing with neutral acetate of lead an oily precipitate. Like the valerianate, the butyrate of zinc possesses a peculiar odour, which, although it differs very perceptibly, is not so marked as to be appreciable by persons but little accustomed to handle these products; and this difficulty is increased if the butyrate of zinc is impregnated with essence of valerian; not merely its peculiar odour is entirely hidden, but it has acquired that of valerian itself: and it was owing to some valerianate of zinc which the authors had in their possession, emitting the odour of essence of valerian, that led them to doubt its nature, and submit it to examination.

The process by means of which they succeeded in detecting the

fraud was very simple. It was founded on the different action which the valerianic and butyric acids exert on a concentrated solution of acetate of copper. The characteristic reaction is very simple and decisive. From experiments which the authors made, it results that whilst butyric acid immediately forms a bluish white precipitate in a solution of acetate of copper, which renders it turbid, valerianic acid, on the contrary, produces no perceptible change, but by agitation it is converted into greenish drops of an oily appearance, which are partly deposited and which partly float on the surface of the liquid, adhering to the sides of the vessel just like a fatty substance. These drops, consisting of the anhydrous valerianate of copper, persist from five to twenty minutes, and are then converted by hydration into a greenish blue crystalline powder.

As these reactions are produced in a very marked manner only when the valerianic and butyric acids are pure or in a concentrated solution, it is therefore necessary to separate the acid of the salt under consideration. For that purpose three or four grammes of the valerianate are triturated with a little water, and then introduced into a tubulated retort, to which a small balloon serving as a recipient has been adapted; then twice or three times the weight of sulphuric acid, diluted with an equal portion of water, is poured upon the salt through the tubulature, the whole is agitated, and then heated gently, taking care as much as possible to avoid any violent ebullition: very soon a liquid passes into the recipient, which consists of nearly the whole of the acid of the salt employed and a little water. It is this liquid which is subsequently used to determine by the above reaction the nature of the product. The distillation should not be carried too far, and a greater weight of the liquid than equals the quantity of the valerianate employed should not be collected.

In order to ascertain whether the solution of acetate of copper would allow of detecting a mixture of butyric and valerianic acids, the authors found by experiment that a mixture of these two acids in different proportions, produced in the acetate of copper the reactions peculiar to each, but the appearances were not exactly of the same kind as when the acids are taken separately. In the latter case the reaction was well defined and immediate: on the one hand, when butyric acid alone was present, the liquid became turbid and deposited a precipitate; on the other, when valerianic alone was present, the liquid became less transparent, and oily drops were formed in the solution, which adhered to the sides of the vessel. In the case of a mixture, on the contrary, unless the proportion of butyric acid is very considerable relatively to that of the valerianic acid, the results are not so quickly evident. To avoid every cause of error in researches of this kind, it is necessary to employ a slight excess of the reagent, because valerianic acid displaces butyric acid from its combination with the oxide of copper(a).

Double Chloride of Mercury and Quinine. By Mr. M'Dermott of Dublin.—This *new* salt is prepared in the following manner:—Dissolve separately one part of bichloride of mercury and three parts of hydrochlorate of quina in the smallest possible quantity of water; mix the two solutions; the double salt will separate in acicular crystals.

Dr. Hamilton has administered this salt for lupus in pills made according to the following formula:

R Chloride of mercury and quina, gr. i.
Powdered opium, gr. $\frac{1}{4}$.
Crumb of bread, q. s.

Make into thirty pills: take one three times a day(a).

On Citrate of Magnesia, and a Purgative Water made with this Salt. By M. Roge Delabarre.—The author states that, on making some experiments with the salts of magnesia, he had occasion to observe that the citrate of magnesia is devoid of the bitter and disagreeable taste which characterize the other soluble salts of this base; and from experiments which he made with the citrates, he states that, of all the salts of any base, the citrate is that in which the taste peculiar to the base is to the greatest extent lost. He proposes the two following formulæ for the preparation of this salt:

1st. By double decomposition from the sulphate of magnesia and citrate of soda in their atomic proportions.

2nd. By saturating a solution of citric acid with magnesia, or the basic carbonate.

The neutral citrate of magnesia prepared by either of the processes above described is a white, pulverulent, insipid salt, soft to the touch, heavier than magnesia, and soluble in water by the addition of a slight excess of the acid. This solution has a slightly acid taste, but is in no way disagreeable.

The author also proposes the following preparation for the administration of citrate of magnesia:

Seidlitz Water free from bitterness, or Purgative Mineral Water of Citrate of Magnesia.—

	Gram.	Grs.
Citrate of magnesia,	40	617·360
Citric acid,	2	30·868
Simple syrup,	125	2315·103
Essence of orange, q. s.		
Carbonic acid water, q. s.		

To fill a common mineral water bottle containing 750 grammes (about the size of a wine bottle)(b).

Note on the Preparation of Oxide of Silver. By Dr. Butler Lane.—Mr. Underwood having stated that oxide of silver forms an explosive compound when mixed with conserve of roses, or with an essential oil, Dr. Lane has republished the formula which ought to be em-

(a) *Journal de Pharmacie*, and Bell's Pharm. Journal, vol. vi. No. 4, October, 1846.

(b) *Journal de Pharmacie*, vol. xii. p. 31.

ployed in its production, and which, he states, is perfectly free from any explosive property. His formula is the following :

Dissolve four parts of the grey protonitrate of silver in distilled water, also rather more than two parts of the hydrate of potash in a separate quantity, freed by filtration from the oxide of iron, and any other impurity; mix and let stand for an hour, stirring frequently with a glass rod: the supernatant liquid will be found a solution of nitrate of potash, the freedom of which from nitrate of silver may be ascertained by taste, or by testing with hydrochloric acid, showing that complete decomposition has been effected, otherwise more solution of potash should be added; the fluid is then to be poured off, and the precipitated oxide of silver to be washed repeatedly with distilled water until it is found to remain perfectly clear, and quite devoid of all taste and alkaline reaction. The precipitated oxide is then to be drained on filtering paper, and thoroughly dried at a temperature of about 150° Fahr.

He further states that neither lime nor any other alkali will answer the purpose of decomposing the nitrate of silver as well as the potash, and that the preparation with ammonia is dangerous in the highest degree; but that, if prepared according to his formula, neither heat, friction, nor percussion will occasion any explosion. The combinations of the oxide of silver which he recommends are as follows:

1. With extract of gentian or camomile.
2. With extract of hyoscyamus, or conium, to which he often adds a small proportion of ipecacuanha.
3. With inspissated ox-gall.
4. With the aqueous extract of opium.
5. With compound cinnamon powder.

The pills should never be rolled or kept in carbonate of magnesia(a).

New Preparation of Quina.—A new preparation of quina has been lately introduced, for which Dr. Kingdon has given a formula: it is the diarsenite, that is, it consists of one part of arsenious acid and two of quina. The preparation is made in the following manner: he first dissolves sixty-four grains of arsenious acid and thirty-two grains of pearl ashes, or subcarbonate of potash, in four ounces of distilled water, by boiling it for about half an hour, and then makes it up to four ounces with as much water as may be required, so that each drachm may contain two grains of arsenic. He adds five drachms of this solution to two scruples of disulphate of quina, previously dissolved in boiling distilled water; immediately a white, curdy precipitate is formed, which is the diarsenite of quina. He then pours it on a filter, well washes it, and leaves it on the filter to dry. When the proportions are accurately weighed, the water is neutral, and no arsenic can be detected. It is uncrystallizable, and insoluble in water, but soluble in alcohol. He gives the one-third of a grain for a dose twice a day, and gradually increases it to three and four times

(a) Medical Times, and Braithwaite's Retrospect, vol. xvi., p. 355.

in the course of the day, either made into pills with bread, or in the form of powders, mixed with a little sugar or gum ; of course, nothing acid must be given at the same time, as that would decompose it(a).

Cyanide of Potassium in Caustic Potash.—The presence of cyanide of potassium in caustic potash was discovered by Dr. Herzog whilst preparing carbonate of potash from pale-coloured argol. Even after the preparation had been boiled for several hours with water and caustic lime, the cyanide of potassium was not yet decomposed(b).

Test for the Presence of a Carbonate in the Bicarbonate of an Alkali. By M. Cottureau.—Chevallier, some years ago, proposed the use of potash as a means of detecting the presence of the sugar of fecula when mixed with cane sugar. The reaction which takes place is indicated by the production of a red or yellow colour, according to the quantity of sugar of fecula present. To the experiments of this chemist I may add the following:

1st. All the alkalies produce the same effect, as was observed by M. Chevallier in the case of potash, when in contact with sugar of fecula. Ammonia does not offer an exception to this rule.

2nd. All the alkaline carbonates also produce the same effect, but with carbonate of lime the effect is very feeble.

3rd. The bicarbonates of the alkalies, under similar circumstances, do not produce any change of colour.

It follows from this that a neutral alkaline carbonate may be easily distinguished from a bicarbonate by the action of sugar of fecula, and by the same means the admixture of a carbonate with a bicarbonate may be detected.

In all cases the application of heat greatly promotes the reaction alluded to(c).

DISTILLED WATERS.

Note on the Preparation of the distilled Water of Cherry-Laurel Leaves. By M. Deschamps d'Avallon.—The author states that, from various experiments made by him, with a view of ascertaining the best method of preserving as well as preparing this highly important pharmaceutical preparation, he has arrived at the following conclusions:

1st. That it is necessary to cut and bruise the laurel leaves before they are submitted to distillation.

2nd. That the proportion of hydrocyanic acid contained in this water diminishes with the length of time after its preparation.

3rd. That we can easily know when this water has been properly prepared, since it ought to contain in every thirty grammes, eleven months after it has been prepared, grm. 0.020 of hydrocyanic acid.

(a) *Prov. Med. and Surg. Journal.* Medicines and their Mode of Administration, by J. M. Neligan, M. D., 2nd ed. p. 391.

(b) *Pharm. Central Blatt*, and *Bell's Journal*, vol. vi., No. 12, June, 1847.

(c) *Journal de Chimie Medicale*, and *Bell's Pharm. Jour.*, vol. v. No. 10, April, 1846.

4th. That by adding grm. 0·012 or grm. 0·015 of pure sulphuric acid to 100 grammes of the laurel water, we can preserve for a year or so all the hydrocyanic acid contained in it.

5th. That this small quantity of sulphuric acid can by no means injure the effect of this distilled water(a).

We think these observations well worthy of consideration, and that the author's experiments, which will be found detailed in the Journal above alluded to, deserve to be repeated, as we know from experience that the odour of laurel water is *per se* no criterion of its value as a therapeutic agent.

ALCOHOL AND ETHERS.

Test for anhydrous Alcohol. By Casoria.—In order to determine whether alcohol contains water, let a sample of it stand for some time in a well-closed vessel with anhydrous sulphate of copper. If water be present the latter assumes a blue colour, but it remains white if the alcohol be free from water(b).

Sweet Spirits of Nitre.—Mr. Curtis, of Leamington, in a note addressed to the Editor of the Pharmaceutical Journal, states that he lately had occasion to order some iodide of potassium in camphor mixture, with some sweet spirits of nitre, when the mixture became of a deep orange colour, indicating the presence of a free acid in the spirit, as some iodine had been set free(c).

We have noticed this, as we have found (by the ordinary test of litmus paper) that a great quantity of the spirits of nitre sold by manufacturing chemists contained free acid, and that some also contained aldehyd to a very considerable extent (which we detected by the ordinary nitrate of silver test for the presence of aldehyd); and we also noticed that when pure sweet spirits of nitre is kept for any length of time in bottles but partially filled, we could readily detect the presence of aldehyd.

Chloroform.—As this substance has latterly obtained such celebrity as an anæsthetic agent, we subjoin the mode of its preparation, as also the means of testing its purity.

Chloroform, chloroformyle, or the perchloride of formyle, may be made and obtained artificially by various processes: as, by making milk of lime, or an aqueous solution of caustic alkalies, act upon chloral; by distilling alcohol, pyroxilic spirit, or acetone, with chloride of lime; by leading a stream of chlorine gas into a solution of caustic potass in spirits of wine, &c.

The preparation used by Dr. Simpson was made according to the following formula of Dumas:

Take of chloride of lime in powder, 4 lbs.

„ water, 12 „

„ rectified spirit, 12 oz.

Mix in a capacious retort or still, and distil as long as a dense

(a) *Journal de Pharmacie*, tom. xii. Sept., 1847.

(b) Bell's Pharm. Journal, vol. vii. No. 1, July, 1847.

(c) Bell's Pharm. Journal, vol. vi. No. 5.

liquid, which sinks in the water with which it comes over, is produced.

This process, which we believe is the one generally adopted, is not free from danger, and ought not to be attempted without particular precautions, as on applying heat to the mixture of chloride of lime, spirit, and water, a violent action ensues, accompanied by a great frothing of the ingredients; so that if the still be not capable of holding eight or ten times as much as the quantity of the ingredients introduced, the still-head may be blown off with considerable violence, and the apartment filled with chlorine vapours. Immediately after this action has taken place, a dense, oily-coloured liquid passes into the receiver, where it sinks to the bottom of the water, which distils over with it. Perfectly good chloride of lime should be used, otherwise the product will be very small. The dense liquid thus obtained is impure chloroform. It is necessary to purify this by treating it with oil of vitriol and carbonate of baryta or of potash, and by subsequently distilling it from chloride of calcium, after washing it repeatedly with water. The product will now be pure, if sufficient time and pains have been devoted to the latter part of the process. Not unfrequently, however, it will be found still to retain a minute portion of alcohol, the presence of which is considered by some persons to be prejudicial. Messrs. Morson and Hooper state, that as it is necessary to distinguish between chloroform and chloric ether, they consider the greater specific gravity of chloroform, its insolubility in water, and the difficulty of igniting it, will serve to point out the difference between it and chloric ether. M. Mialhe, in a communication recently made to the Academy of Sciences of Paris, mentions the following among the chemical properties of chloroform. It rapidly evaporates, producing great cold when dropped on the skin. It has neither an acid nor an alkaline reaction, but is perfectly neutral when pure. It is readily dissolved by alcohol and ether, but is again separable by water. It readily deoxidizes nitric acid by the aid of a moderate heat; gold is not dissolved by this mixture, hence no hydrochloric acid is formed, and no chlorine evolved; chloroform does not dissolve gold, nor does it bleach vegetable colours, hence it contains no free chlorine: potassium floats in it without decomposing it, and no gas is evolved. (If much alcohol or ether were present, there would be an evolution of hydrogen.) It forms a milky liquid, but does not enter into combination with caustic potash. It gives an oily-looking stain to paper, easily dissipated by heat; the vapour is not inflammable, but it renders the flame of a wax candle smoky and carbonaceous like chlorine. What is commonly sold as chloric ether is a solution of chloroform in alcohol. The alcohol may be detected and separated by water, as in the washing of ether; it may be also detected by potassium; and as chloroform boils at 140° and alcohol at 172° , it is probable that Dr. Ure's method of detecting pyroxilic spirit in alcohol by the temperature of ebullition, might be applied to the detection of alcohol in chloroform. Some specimens of chloroform, which have been offered for sale at a low

price, have evidently been made from pyroxilic spirit, the taste and smell indicating their origin. M. Mialhe states, as the result of his researches:

1st. That pure chloroform, applied to the skin or mucous membrane, produces simple redness, without cauterization or vesication. It acquires, however, caustic properties when mixed with a small quantity of absolute alcohol.

2nd. That the chloroform used in medical practice, which has caused vesication of the lips or nostrils, with irritation of the bronchial tubes, could not have been pure.

3rd. That this chloroform contains a certain quantity of anhydrous alcohol. The presence of this liquid in chloroform was suspected by MM. Soubeiran and Gerdz, and it has been demonstrated by analysis. The alcohol may act by combining with and coagulating the albuminous fluids of the body, and thus giving rise to the local effects of irritation; hence, before using chloroform vapour in surgical practice, it is indispensably necessary to ascertain whether it be pure. M. Mialhe finds that the following is a very delicate test of the presence of alcohol in chloroform:—Place some distilled water in a tube or glass, and drop on it a small quantity of chloroform. The greater part sinks immediately to the bottom of the vessel, owing to its great density (sp. gr. 1.48). A small quantity floats by repulsion, but may be made to fall in small globules by agitation. If the chloroform be pure, it remains transparent at the bottom of the vessel; but if it contain only a small portion of alcohol, the globules acquire a milky opacity(a).

TINCTURES AND WINES.

On the Preparation of Alcoholic Tinctures. By J. Personne.—The objects of the present memoir, for which the author received the prize proposed on this subject by the *Société de Pharmacie*, were, first, to ascertain whether the proportion of alcohol at present employed is sufficient to dissolve the whole or at least the greatest possible amount of the principles contained in the substances, and if not, to determine the best proportion to be used; and, second, to ascertain the most suitable degree of strength the alcohol should possess to dissolve the active principles of the materials. In order to determine the amount of alcohol requisite, it was necessary to macerate the substances under examination with variable quantities of spirit, then to obtain the entire amount of the tincture, and to evaporate it in order to obtain the weight of the matters in solution. To accomplish this the author found the following process to answer best:—A weighed quantity of substance was macerated during a suitable time in a given proportion of alcohol; the maceration being completed, the whole was brought upon a filter, the quantity of filtered tincture accurately weighed, then evaporated in the water bath, and finally, the extract obtained dried in a chamber heated

(a) Bell's Pharm. Journal, vol. vii. No. 6, Dec. 1847; and vol. vii. No. 7, Jan. 1848.

from 158° to 194°, until it no longer altered in weight. The weight of this extract, subtracted from that of the evaporated tincture, yielded the weight of alcohol contained in that quantity of tincture; a simple equation then suffices to ascertain the total weight of extract which the whole of the tincture would have yielded. In order to ascertain the strength of the alcohol most favourable for the preparation of tinctures, the author determined the quantity of the active principles contained in the substances where they were well defined and characterized principles; such, for instance, was the case with the barks, *nux vomica*, and *jalap*. These determinations were made in the following manner:—For the barks and the *nux vomica* the tincture was evaporated in the water bath, and the extract obtained treated with acidulated water; the filtered liquid was precipitated by subacetate of lead to remove all foreign matters, and the excess of lead having been separated by sulphuretted hydrogen, the alkaloids were thrown down by a solution of pure tannin, and estimated in the state of tannates. But although, for the above substances, the results may be readily checked, it is not so for the greater number, the active principles of which do not possess well-defined chemical properties. How, for instance, in the case of hemlock, belladonna, rhubarb, gentian, &c., is it possible to determine whether the tincture prepared with alcohol of 0·865 contains more active principles than that prepared with alcohol of 0·923?

Among these substances there are some, the properties of which reside in a bitter principle, as rhubarb, gentian, wormwood. In such cases the author took two fixed quantities of tinctures, prepared with alcohol of different degrees, and ascertained by diluting those which required the greater quantity of water for the bitterness to disappear. Unfortunately these means of investigation cannot be employed for a large number of substances, a defect which it has not been found possible to remedy; it is only by reasoning, founded on the chemical analysis of these substances, that the author has selected the degree of alcohol suitable. The only method, in his opinion, of arriving at the desired object, would be to experiment in practice with tinctures prepared from such substances, and alcohol of different degrees of strength. The degrees of alcohol employed in these experiments are five in number, viz., alcohol of 0·833, 0·865, 0·889, 0·923, and 0·942, specific gravity. From the experiments detailed, amounting to no less than 300 upon thirty-two different substances, the author considers himself justified in drawing the following conclusions:

1st. The different degrees of strength of alcohol prescribed by the French Codex (0·848, 0·865, 0·923) are not always the most favourable for dissolving the greatest quantity of the principles contained in the substances employed in the preparation of tinctures.

2nd. These degrees can scarcely be admitted in a general manner, except for a certain number of substances; experiment alone can show which is best suited for each.

3rd. The proportion of four parts of alcohol to one of substance, as prescribed in the Codex, is scarcely sufficient in any single case to dissolve all the soluble parts of the substances.

4th. The quantity of alcohol sufficient to exhaust a substance entirely is in general five parts of alcohol to one of substance.

5th. The quantity of alcohol is always sufficient to exhaust a substance when this vehicle is in sufficient quantity to moisten it through, and when the substances are of an herbaceous nature, as leaves, &c.

6th. The alcohometric degrees most suitable for the preparations of the different tinctures are alcohol of 0·865, 0·923, and 0·942, specific gravity. These alcohometric degrees are arranged in the following table with the substances for which they are suited. To each of the tinctures is added the quantity of substance equivalent to one gramme of the tincture.

In concluding, the author mentions a singular fact which occurred in nearly every experiment: almost every time that the proportion of alcohol was greater than required to exhaust the substances, he always obtained less extract than when the proportion was just sufficient; that is to say, the quantity of extract diminished in proportion as the quantity of alcohol was increased.

Table of the different Degrees of Alcohol to be employed for each Substance.

			In round Numbers.	
Take one part of substance and five parts of alcohol, of 0·865 spec. grav. for the tinctures of,	Yellow Bark,	1 gr ^m equiv. to	0·20	powder.
	Jalap,	„ „	0·19	„
	Cinnamon,	„ „	0·20	„
	Pyrethrum,	„ „	0·20	„
	Castor,	„ „	0·18	„
Take one part of substance and five parts of alcohol, of 0·923 spec. grav. for the tinctures of	Myrrh,	„ „	0·19	„
	Rhubarb,	„ „	0·18	„
	Grey Bark,	„ „	0·20	„
	Ipecacuanha,	„ „	0·19	„
	Nux Vomica,	„ „	0·20	„
	Gentian,	„ „	0·18	„
	Red Bark,	„ „	0·20	„
	Digitalis,	„ „	0·18	„
	Senna,	„ „	0·19	„
	Squills,	„ „	0·17	„
	Black Hellebore,	„ „	0·18	„
	Contrayerva,	„ „	0·20	„
Take one part of substance and five parts of alcohol, of 0·942 spec. grav., for the tinctures of	Polygala,	„ „	0·18	„
	Ginger,	„ „	0·20	„
	Valerian root,	„ „	0·19	„
	White hellebore,	„ „	0·18	„
	Colchicum (Corneus),	„ „	0·19	„
	Aconite,	„ „	0·19	„
	Hemlock,	„ „	0·18	„
	Belladonna,	„ „	0·19	„
	Hyoscyamus,	„ „	0·18	„
	Stramonium,	„ „	0·18	„

With respect to the mode of preparing these tinctures, the author considers that it has been clearly proved that, of all the methods proposed, that of cold maceration is the most suitable(a).

On the acetous Fermentation of some of the Alcoholic Preparations of the Pharmacopœia. By Mr. William Bastick.—The author states that, contrary to the prevailing opinion that the tinctures of the Pharmacopœia are very stable preparations, he has found that various ones kept many months in the ordinary circumstances in which they would be placed by their consumption in a druggist's shop, such as being in bottles half filled, in a temperature varying from 60° to 80°, and occasionally admitting fresh air, were found on examination by the proper tests to have undergone the acetous fermentation in a greater or lesser degree; the alcohol having been converted into acetic acid.

The tinctures were generally diminished in colour and taste, and contained a precipitate, a portion of which was re-soluble on the addition of a sufficient quantity of spirit to supply the place of that decomposed. This circumstance shows that a part of the precipitate was caused by the decomposition of the alcohol, and a part by the destruction of the vegetable principles themselves. When the tinctures in this condition were completely exposed to the action of the atmosphere at a sufficient temperature, the alcohol contained in them was speedily and entirely converted into acetic acid.

The proof spirit tinctures most liable to the acetous fermentation are those which contain proximate principles in solution which are prone, *per se*, to decay, the spirituous menstruum not having sufficient antiseptic power to permanently resist their decomposition.

The tinctures made with rectified spirit are not susceptible of any change of a similar character, neither are the tinctures above spoken of, when the strength of the spirit is considerably increased. That the acetous fermentation is induced in the tinctures by the presence of bodies in a state of change acting as a ferment, is clear from the fact that a mixture of alcohol and water will not ferment without the presence of some such body. It is also evident that the vegetable substances held originally in solution have been subject to a material change by the loss of colour and taste of the tincture, and by its containing a precipitate, a portion of which was insoluble in a mixture of alcohol and water. Some of the preparations most prone to this change are the tinctures of senna, rhubarb, calumba, henbane, digitalis, bark, hops, aloes, compound tincture of cinnamon, compound decoction of aloes, concentrated infusions, fluid extracts, and all similar preparations, especially those which are weaker in spirit than the tinctures.

The author further states, that as druggists are forbidden to alter the constitution of any of the preparations of the Pharmacopœia, there is but one course open to them, and that is, as far as

(a) *Jour. de Pharm.*, Dec., 1845.

circumstances will permit, to keep the preparations in bottles well filled and well closed, and in a low temperature, which are the conditions found to be least favourable to the development of the acetous fermentation(a).

On the changes of Composition in Tincture of Iodine according to the length of time it has been prepared. By M. Guibourt.—M. Guibourt calls attention to the variation which the alcoholic tincture of iodine presents in its composition and therapeutical effects, according to the greater or less space of time which had elapsed since its preparation, and cites as an instance the mixture employed by M. Velpeau in the treatment of hydrocele; if the tincture be recently prepared according to the formula of the Codex (one part of iodine to twelve of alcohol, of 86° Cent.), and double its weight of water be added to this tincture, almost the whole of the iodine will be precipitated in the form of blackish particles, which readily separate on being allowed to rest, and the supernatant liquid will be scarcely coloured. If the clear transparent part be used, it will produce, probably, only a slight degree of irritation caused by the alcohol. If the liquid be shaken, and injected while turbid, a mass of solid particles of iodine will be deposited on the tunica vaginalis, which might produce an irritation so intense as to become dangerous.

If the tincture has been prepared four or five months, the following changes would have taken place in it during that time:—A part of the iodine will have united with the hydrogen of the alcohol, forming hydriodic acid, which, uniting with a part of the iodine, would form the ioduretted hydriodic acid; and this last is not precipitated by water. When, therefore, this tincture of four or five months' date is mixed with double its weight of water, there is still, it is true, a precipitation of iodine, but three or four times less abundant than in the recent tincture. The supernatant liquor, on the contrary, will be highly coloured, and the effects of the mixture will, undoubtedly, be different from those obtained with the recently prepared tincture employed either clear or turbid.

Finally, if a tincture a year or eighteen months old be used, it will scarcely be affected by water, and a still different therapeutic effect will be produced. This being the case, M. Guibourt concludes that the tincture of iodine is a medicament variable in its composition and effects, and that a more certain preparation should be substituted for it, and proposes the following formula:

Iodine and iodide of potassium, of each,	5 grammes.
Alcohol at 90° Cent..	50 „
Distilled water,	100 „

Rub the iodine and iodide of potassium with a little water in a mortar, and then add the alcohol and the rest of the water; keep the solution in a well-stoppered bottle(b).

(a) Bell's Pharm. Jour., vol. vii. No. 6, Dec. 1847.

(b) *Journal de Pharmacie*, vol. x. p. 113.

Tincture of Hops.—Mr. W. Coates proposes the following economical plan for the preparation of the tincture of hops, which he thinks might be employed with advantage for other tinctures the ingredients of which are bulky. The hops, enclosed in a calico bag, and moderately compressed, are placed in a covered shop jar, and the requisite quantity of proof spirit added, which will be found sufficient to cover the bag. By placing a piece of tin-foil over the top (provided the lid fit tolerably tight), evaporation will be prevented. Having been macerated the usual time, the clear tincture is allowed to drain off, and the bag with its contents transferred to the press. From twenty ounces of spirit, and three of hops (in which quantity he made the experiment), he obtained, by using instead of a press an ordinary lemon squeezer, fourteen ounces of tincture, the remaining six ounces being absorbed by the hops. He then poured six ounces of water over the bag, and pressed out the same quantity which (presuming the tincture and water to have been equally mixed) of course contained three ounces of the former; six ounces of water are again added to the hops, and pressure applied as before. He had now twelve ounces of liquid containing four and a half ounces of tincture of hops, and six and a half ounces of water; the exact quantity required for reducing twelve and a half ounces of rectified spirits to twenty ounces proof, which may be employed for the next three ounces of hops, or placed aside properly labelled till wanted(a).

Dr. Collier's Orange Quinine Wine.—The following is the formula recommended by this gentleman:

Take of good disulphate of quina,	24 grains.
Citric acid (in crystals), . . .	15 „
Genuine orange wine, . . .	24 fluid ounces.

Dissolve.

Dose.—A dram-glass or liqueur-glass full or more. When pure this wine remains brilliant without precipitation.

SYRUPS.

Note on the Preparation of the Syrup of White Poppies. By M. Gobley.—M. Gobley states that he prepares the syrup of white poppies with the alcoholic extract of the capsules of the white poppy, which he obtains by treating, by the method of displacement, the capsules reduced to a coarse powder, drawing off by distillation the spirituous part of the liquid, and evaporating the residue to a proper consistence.

M. Molyn, in order to avoid the loss of alcohol which takes place during the operation, recommends us to treat the capsules with cold water, and to evaporate to the consistence of an extract; to dissolve this extract afterwards in a sufficient quantity of water to reduce it to the consistence of syrup; then to add alcohol in order to precipi-

(a) Bell's Pharm. Journal, vol. vi. No. 9, March, 1847.

tate the mucilage and salts ; to filter the liquid, and make it into a syrup with refined sugar. But M. Gobley remarks that M. Molyn has neglected to state that distilled water only should be used, as, according to the judicious remark of M. Gueranger, if we employ undistilled water, the carbonate of lime contained in it will, during the concentration of the liquors, precipitate the morphia to the great detriment of the preparation. But M. Gobley states, that experience has convinced him that the process proposed by him gives a transparent syrup, and one not liable to undergo fermentation^(a).

Syrup of Iodide of Iron. By Mr. Walter Hemingway.—Mr. Hemingway mentions that, owing to the syrup of iodide of iron being frequently met with in druggists' shops of a bad colour (and therefore giving dissatisfaction), which fault he partly attributes to want of dexterity in conducting that part of the process which requires the application of heat after the addition of the iodide, either for the purpose of reducing the quantity or dissolving the sugar, he proposes the following formula as likely to avoid this source of failure:

Take of iodine (pure and dry), 3 ounces, 6 drachms, 2 scruples.

Iron filings (clean), . 2 ounces.

Distilled water, q. s.

Add, little by little, the iodine to the iron filings, in a mortar containing six ounces of water, allowing each action to cease previous to the next addition; agitate the mixture, without additional heat, until it assumes a green colour; transfer the liquid portion into a measure; wash the filings that remain with half an ounce more of water, again, and a third time; mix the washings with the decanted fluid, and make up exactly to twelve fluid ounces and a half; call it "the solution," and keep it in a well-stoppered bottle with iron wire and filings: each fluid drachm will contain thirty grains of crystallized iodide of iron. When wanted for use, pour off without disturbing the sediment, and pass through coarse filtering paper.

From this solution it is proposed that the syrup should be made. Should it become brown by keeping (and it will if the stopper be insecure), the bottle must be shaken that the green appearance may be recovered; and should this be the case when the syrup is about to be made, time must be given for the dregs to subside, in order that the filtration may proceed as rapidly as possible.

To make the syrup, take of

Simple syrup (white), P. L., . . 15 fluid ounces.

Solution of iodide of iron as above, 2 do. do.

Put the syrup into a common saucepan (lined with enamel); accurately balance the whole; next apply heat, until, by a gentle ebullition, it has decreased in weight two ounces avoirdupois; remove it from the fire, get ready the solution, and, without loss of time, mix

(a) *Journal de Pharmacie*, vol. ii. p. 356, May, 1847.

it intimately with the reduced syrup, and bottle directly (if the consumption is small) in four ounce bottles: when quite cold shake well up. Each fluid drachm contains four grains of crystallized iodide, the equivalent of rather more than three grains of the dry.

Mr. Hemingway states that neutral solution of iodide of iron is *blue* green, which is the colour of the syrup made according to this process. Yellowish green, yellow, and brown appearances, indicate degrees of decomposition and corresponding imperfection, in formulæ which are attended with their production(a).

Observations on Syrupus Croci. By Mr. Charles Cracknell.—Mr. Cracknell states that having suffered much inconvenience and annoyance from the separation of the colouring matter in the syrup of saffron, he made some experiments with a view of finding a method of preventing the above disagreeable circumstance.

Mr. Cracknell found that white sugar added to a cold infusion (instead of a boiling) in the proportions ordered by the Pharmacopœia, and with this two grains of carbonate of potash for each ounce of sugar, and the whole dissolved with a gentle heat, formed a syrup, which possessed for a very long period all the transparency and aroma, and nearly all the colour, it had when first prepared.

Mr. Fordred says, that a method of preserving syrup of saffron from undergoing decomposition has lately come under his notice, which consists in evaporating the syrup to dryness, which was dissolved in water when dispensed(b).

An easy and economical Method of preparing Mannite. By M. Giovanni Ruspini.—Dissolve with a gentle heat seventy-two ounces of ordinary manna with about half of its weight of rain water, in which the white of an egg has been previously suspended; boil for a few minutes, and pass the solution through a woollen bag; the liquid thus obtained solidifies on cooling, it then presents the following character: a mass of pale brown colour, which is resolved by trituration into a pultaceous liquid like common honey.

Having strongly expressed the manna thus prepared through a linen bag, the author dries the mannite (nearly white) which remains in the bag, and reduces it into powder; he then dissolves it in alcohol, and when the solution is boiling he adds animal charcoal and filters it immediately through paper, taking care to allow the filtered liquor to fall into a porcelain capsule, when the mannite crystallizes on cooling. He has thus obtained thirty ounces of crystals, extremely white, and of a mother-of-pearl lustre(c).

EXTRACTS.

Process for preparing Cannabine or the Resin of the Indian Hemp.
By the Messrs. T. and H. Smith.—The peculiar and marked narcotic

(a) Bell's Pharm. Journal, vol. vi. No. 7, January, 1847.

(b) Bell's Pharm. Journal, vol. vi. No. 2, August, 1846.

(c) *Journal de Pharmacie*, vol. x. p. 116, August, 1846.

action of the Indian hemp resides in a soft neutral resin, soluble in rectified spirit, but insoluble in water or weak spirit, and therefore separable by water from the alcoholic solution in the form of an extremely whitish pulverulent substance, which gives the liquid a milky appearance. The resin very much resembles jalap resin, or jalapine, except in remaining soft, even after continued drying, and in giving out a strong aromatic smell on heating, and having a warm, pungent, and balsamic taste. The following is the method employed by the Messrs. Smith for obtaining this extract. The plant is, after being bruised, digested in repeated portions of moderately warm water, pressing out each time till the water comes away colourless. It is then digested in a solution of crystallized carbonate of soda, using of this half the weight of the quantity of dried gunjah operated on.

After macerating at a moderate heat for two or three days the liquid is pressed out and pure water substituted, and this is repeated till the water comes away nearly colourless. The washing is for the purpose of removing a large quantity of brown colouring matter, which they found it difficult to remove in any other way than this. The alkali removes a further quantity of colouring matter, along with a large quantity of a fatty acid, *quite inert*, which may be got by adding an acid to the alkaline liquid after filtration. The plant is now dried till it ceases to lose weight, and then macerated or percolated with strong rectified spirit of wine. To the spirituous solution a milk of lime as thick as cream is added, containing one ounce of fresh burned lime for every pound of the plant. The lime removes any of the fatty acid and chlorophyll which may have been left by the soda. After filtration a slight excess of sulphuric acid is added, to throw down in the state of sulphate the lime left in the liquid; for this purpose one or two fluid drachms for every pound of the dried plant will be enough. A little pure animal charcoal is now also added, and shaken with the liquid for some time. The greater part of the spirit is now, by distillation, recovered from the filtered liquid, and the resin washed with a small quantity of rectified spirit; three or four times its bulk of water is then mixed with the liquid, and the dish (a porcelain basin) is set aside till the spirit has completely escaped by evaporation. The resin, being heavier than the watery liquid now left, remains at the bottom of the dish. The fluid is now carefully poured off, and fresh water used till it comes away free from any sour or bitter taste. The resin is now dried, either spontaneously or by the aid of heat, and to expedite the drying it is spread out occasionally in a thin layer on the side of the dish.

The resin is brown in mass, but of a fawn colour in thin layers; two-thirds of a grain acts as a powerful narcotic, and one grain produces complete intoxication. The resin contains the whole power of the plant. The dried gunjah yields from six to seven per cent. of the resin. One cause of the irregularity of the effects of the extract, as hitherto made, has been, without doubt, that water or weak spirit has been used instead of strong rectified spirit in its prepara-

tion, in which case the resin would be left in the marc. Gunjah is the dried Indian hemp plant(a).

On the Preparation of Acetic Extract of Colchicum. By Mr. Fordred.—Mr. Fordred states that most of this extract in commerce varies materially in its strength, which he conceives arises from inattention to the fact that a very large constituent of the cormus is starch, amounting to nearly 50 per cent. of the solid matter. The plan which he has adopted for some years, and which he has found to yield the best extract, is the following: he takes the fresh cormus and bruises it well in a large marble mortar, with a wooden pestle; as successive portions of it are crushed they are thrown into a large pan or tub; and when the whole is finished he throws over the mass the requisite quantity of acetic acid. He allows this to macerate two days, occasionally stirring with a wooden rod; he then presses it off and strains the liquid through a coarse sieve, merely to remove the solid pieces of cormus which are forced through, but not to interfere with the starch. He then allows it to settle and the supernatant liquor is drawn off, leaving the bed of starch at the bottom undisturbed; he then evaporates the liquor rapidly in a well-tinned pan, and when reduced to what the operator considers sufficient, the residuary starch is mixed in, and finally reduced to extract consistence by a heat not exceeding 100° Fahr., so as to avoid the gelatinization of the starch. The great error, he states, in manipulating this extract has been in evaporating the acid liquor as it issued from the press with the admixture of starch; directly the necessary heat was applied, of course the starch immediately gelatinized, and no subsequent exsiccation could produce a creditable extract(b).

OINTMENTS.

M. Jobert prepares three species of ointment of nitrate of silver for the treatment of certain acute and chronic inflammations of the joints. The following are the formulæ:

Ointment No. 1. Axunge, 32 grammes.

Nitrate of silver, 4 do.

No. 2. Contains eight grammes of nitrate of silver to thirty-two grammes of axunge.

No. 3. Contains twelve grammes of nitrate of silver to thirty-two grammes of axunge(c).

Ointment for the Cure of Chronic Eczema.—

Axunge, 40 parts.

Nitrous Turbith, 2 „

Extract of Opium, 1 „

Dissolve the extract of opium in a few drops of water, add then the axunge; rub up all together in a wedgewood mortar till the mix-

(a) Bell's Pharm. Journal, vol. vi. p. 171, No. 4.

(b) Bell's Pharm. Journal, vol. vii. p. 259, No. 6.

(c) *Jour. de Pharmacie*, vol. x. p. 200, Sept. 1846.

ture is perfectly homogeneous. This ointment is lightly rubbed morning and night to the part affected.

It is intended to replace those ointments which have the ordinary citrine ointment as their base, which, owing to the variable composition of citrine ointment, are uncertain in their effects(*a*). We suppose the author intends a subnitrate of mercury or a salt analogous to the ordinary turbith, the nitric acid replacing the sulphuric of the ordinary turbith.

PLASTERS.

Blistering Cloth. By M. Garoste.—Take of

Black pitch, purified,	125 parts.
White wax,	30 „
Cantharides, in fine powder, . . .	60 „
Olive oil,	8 „
Spirit of Turpentine,	15 „

The pitch is purified by melting it in a dish, and straining it through a close piece of linen. The pitch thus purified is melted in an earthen vessel over a gentle fire, with the wax; the cantharides, the oil, and spirit of turpentine are then added, when the mixture is well stirred. A small quantity of the plaster is thrown into cold water and kneaded; if it be neither too soft nor too brittle, it is then spread on the glazed side of some oil-cloth with a plaster iron slightly heated.

The quantity of wax, oil, and spirit of turpentine, may be varied according to the quality of the black pitch employed, so as to give the plaster a consistence suitable for its being spread on cloth. Copper vessels should never be used for preparing those medicinal compounds of which wax is an ingredient; the plaster should be melted in a glazed earthen vessel. The cantharides are added by means of a sieve, so as to divide the particles and prevent their collecting into lumps. These vesicatories should never be camphorated with a solution of camphorated ether, but rather with finely powdered camphor, and for this purpose the blistering cloth should be previously slightly warmed. M. Garoste considers this the most efficient and easy of application of all the formulæ published for blistering plaster(*b*).

Warming Plaster.—M. Mialhe proposes the following formula for a rubefacient plaster (which is free from the inconvenience attending that in ordinary use, and yet more active), viz.:

Burgundy pitch, . . .	8 parts.
Black resin,	4 „
Yellow wax,	4 „
Turpentine,	1 „
Olive oil,	1 „
Tartar emetic, . . .	2 „

(*a*) *Jour. de Pharmacie*, vol. x. p. 449, June, 1847.

(*b*) *Jour. de Pharmacie*, vol. xii. p. 200, Sept. 1847.

Melt by means of a water bath the Burgundy pitch, the resin, wax, and turpentine; and add, constantly stirring the mass, the tar-tar emetic previously intimately mixed with the oil(a).

DECOCTIONS.

Decoctum Aloes Compositum. By Mr. R. W. Westall.—Mr. Westall states that, by preparing the compound decoction of aloes according to the following formula, several advantages are obtained, viz., that the article is of one uniform appearance, the rich colour is retained to the last, and the preparation is as good at the end of the twelve month as when first prepared.

Take of extract of liquorice,	14 drs.
Carbonate of potash,	2 „
Myrrh and aloes, of each,	3 „
Water,	20 oz.

Boil these ingredients gently with the above quantity of water in a water bath down to thirteen ounces, pour this into a bottle, then add croci three drachms, tinct. cardamom. comp. fourteen ounces; macerate for ten days, then strain through linen. Mr. Westall keeps it in this state, and adds an equal quantity of distilled water when required for use(b).

INFUSIONS.

How to make Senna pleasant to the Taste.—The *Bulletin de Therapeutique* signalizes the use of coffee in disguising the taste of purgatives for children; MM. Guersant and Blache frequently employing it for this purpose. A weak decoction of coffee is made, to which some milk and sugar are added, care having been taken while boiling the coffee to put in a few follicles of senna. If it is given to the children with a little bread, they will generally take it with avidity. This medicine generally acts freely upon children, and thus administered does not induce the violent griping it sometimes does on the adult(c).

APPENDIX.

Removal of Nitrate of Silver Stains from Linen.—The Messrs. Smith state, that these stains, although by the action of heat rendered so difficult to remove, may be very effectually and speedily, and without injury to the linen, removed by wetting the stains with the common solution of chloride of lime. In the course of a few minutes these pass from black to white, in consequence of the formation of the white chloride of silver; but as this would blacken by the action of light, it must be dissolved and washed entirely away. In conse-

- (a) *Jour. de Pharmacie*, vol. x. p. 359, May, 1847.
- (b) *Bell's Pharm. Journal*, vol. vi. p. 221, No. 5.
- (c) *Medico-Chirurgical Review*.

quence of the ready solubility of the chloride in solution of ammonia, or hyposulphate of soda, this operation can be done without the least difficulty, by dipping the part of the cloth covered with the now white marks into either of these solvents, and then, after a few minutes, rinsing thoroughly in clean water. When the marks penetrate deeply, a longer period will be required in order to efface them(*a*).

Chloride of Soda as a Test for the Presence of Guaiacum in Resin of Jalap. By M. Smedt.—It has long been known that chlorine possesses the property of rendering resin of guaiacum blue. According to the author, the chlorides of soda and of lime also possess this property, and may be used for detecting the smallest traces of guaiacum resin, when mixed with resin of jalap. In fact two grains of a mixture of fifteen parts of resin and of jalap, and one part of guaiacum resin, dissolved in 3i. of spirit, sp. gr. .825, give, on the addition of a single drop of solution of hypochlorite of soda (chloride of soda), a green streak, which is deposited as a precipitate to the bottom of the glass, leaving the supernatant liquid of its original colour. M. F. Boudet has found that this test may be applied with equal advantage for detecting the presence of guaiacum resin in scammony(*b*).

Chemical Examination of Sassafras Root. By Dr. Hugo Reinsch.—Dr. Reinsch analysed the bark of the root, which contains a much larger proportion of the active constituents than the wood. His results are as follows:

Water,	. . . . .	90
Heavy volatile oil, light volatile oil, camphoraceous matter,	. . . . .	8
Tallowy matter,	. . . . .	8
Balsamic resin, wax,	. . . . .	50
Sassafrid,	. . . . .	92
Tannic acid,	. . . . .	58
Sassafrid, tannic acid, and gum,	. . . . .	68
Albumen,	. . . . .	6
Gum, red colouring matter, and salts,	. . . . .	30
Starch, reddish-brown colouring matter, tannic acid, and salts,	. . . . .	54
Starch, tannic acid, &c., extracted by a solution of caustic potash,	. . . . .	289
Insoluble woody fibre,	. . . . .	247
		<hr/> 1000

The substance called *sassafrid* is a peculiar principle which may be arranged with tannic acid. It is difficultly soluble in water,

(*a*) Bell's Pharm. Journal, vol. vii. p. 106, No. 3, Sept. 1847.

(*b*) *Journal de Chemie Medicale*, and Bell's Journal, vol. vi. p. 479, No. 10, April, 1847.

but in ether and alcohol is quite soluble. It communicates a dark colour to alcohol. Sassafras wood, freed from the bark, yielded similar results, but it contained scarcely half the quantity of the constituents which the bark yielded, and the volatile oil was even in still smaller quantity. This fact is especially worthy of notice, because we in general obtain from druggists the wood already cut, the bark being previously removed, and sold separately(a).

New Method of preparing Moxas.—M. Guepratte proposes the following plan of preparing moxas, which he states to be free from the inconveniences attending those in ordinary use:

Take a piece of washed calico, and dip it in a solution of subacetate of lead; when it is well impregnated with the solution, dry it and cut it into little fillets, of the height of which you wish to make the moxas; roll them into a cylindrical form, and retain the last turn by four separate points. In order to apply them, cover the surface to be burned with a solution of gum arabic, so that the moxa may adhere of itself; ignite the external part of the cylinder, and the combustion continues regular to the end(b).

How to mask the bitter Taste of Epsom Salts.—M. Combes has found that coffee possesses the power of concealing the nauseous taste of sulphate of magnesia: the following is stated to be his formula for an ordinary dose of about an ounce of the salt:

Sulphate of magnesia,	30	parts.
Ground coffee,	. . . 10	„
Water,	. . . 700 or 800	„

Boil these together for two minutes in an untinned vessel, remove from the fire, and having allowed the mixture to infuse for a few minutes, strain it, sugar it, and drink hot or cold, according to taste. To insure the effect the coffee must be boiled with the salt, as directed above (adding the latter to it afterwards, or to an infusion, does not suffice). If the quantity of the sulphate be much increased, and it is yet desired not to add more coffee than the above, that will suffice, if, while the fluid is boiling, a grain or two of tannin be added(c).

Electric Moxa.—Dr. Golding Bird proposes the following method of applying counter-irritation by what he designates his electric moxa.

Order two small blisters the size of a shilling to be applied to any part of the body, one a few inches below the other; when the cuticle is thus raised by effused serum, snip it, and apply to the one from whence a permanent discharge is required a piece of zinc foil, and to the other a piece of silver; connect them by a copper wire, and cover them with a common water dressing and oiled silk. If the zinc plate be raised in a few hours, the surface of the skin will look white, as if rubbed with nitrate of silver. In forty-eight hours

(a) Buchner's *Repertorium*, and Bell's Jour., vol. v. p. 429, No. 9, March, 1846.

(b) *Journal de Pharmacie*, vol. x. p. 34, July, 1846.

(c) *L'Union Medicale*.

a decided eschar will appear, which (still keeping on the plates), will begin to separate at the edges in four or five days. The plates may be then removed, and the surface where the silver was applied will be found to be completely healed. A common poultice may be applied to the part, and a healthy granulating sore, with well defined edges, freely discharging pus, will be left(a).

Formula for Frank's Solution of Copaiba.—

Prep. I.—Balsam of copaiba, 2 parts.
 Liquor of potassa (P. L.), 3 „
 Water, 7 „

Boil it for two or three minutes, put it into a separator, and allow it to stand for five or six days, then draw it off from the bottom, avoiding the upper stratum of oil. To the clear liquid add one part of sweet spirits of nitre, perfectly free from acid, to which a few drops of liquor of potassa has been added, until it slightly browns turmeric paper; should it turn foul or milky, a very little liquor of potassa will usually brighten it; if not, place it in a clean separator for a few days, and draw it off from the bottom as before, when it will be perfectly brilliant without filtering(b).

Chemical Investigation of the Red Poppy. By Leo Meier.—The author found in the poppies vegetable albumen, gum starch, rhæadic acid, papaverate of lime, cerine, a soft resin, a fatty oil, wax, and woody fibre; and in the ash, chloride of calcium, chloride of potassium, sulphate of potash, sulphate of lime, phosphate of magnesia, phosphate of lime, carbonate of lime, and magnesia. The colouring principle of the flowers consist, according to the author, of two acids, one of which he calls rhæadic acid, the other papaveric acid(c).

New Method of coating Pills.—M. Dorvault has proposed a new plan of concealing the taste and smell of nauseous and acrid medicines when prescribed in the form of pills. As an illustration of his plan we subscribe the formulas as given by himself.

First Formula.—

Take of dried carbonate of potass, } of each, ℥i.
 Pure sulphate of iron, }
 Powdered rhubarb, } of each, ℥ss.
 Powdered liquorice, }

Mucilage sufficient to form them into a mass; mix, and divide into twelve pills: after having slightly moistened them, roll them in finely powdered gum and sugar, aromatized with citron, and allow them to dry.

Second Formula.—

Take of croton oil, 2 drops.
 Powdered starch, } of each, ℥i.
 Powdered gum, }

(a) Medical Gazette.

(b) Pharmaceutical Times.

(c) Buchner's *Repertorium*, and Chemical Gazette, vol. xli. p. 235; No. 86, May, 1847, p. 194.

Mucilage sufficient to form them into a mass; mix, and divide into eight pills; slightly moisten them with mucilage, and allow them to dry(*a*).

Leeches.—A new plan of disgorging leeches, so as to render them efficient for two or three successive applications, has been successfully tried at the Hotel Dieu, Paris. The leeches are sent up in small covered earthen pots, covered with perforated linen, and after use they are returned into these pots and taken to the surgery. This matter being attended to prevents the animals being lost or put into vessels containing anything injurious. In the afternoon of the day after being used, a dozen leeches at a time are thrown into salt water, containing sixteen parts of salt to 100 of water. They are removed one by one, being seized by their posterior extremity, and plunged into water which feels very warm to the hand. The leech is then gently pressed between the fingers, which readily disgorges all the blood it contains. After being thus emptied the leeches are placed in a vessel of fresh water, which is renewed once in twenty-four hours. At the end of eight or ten days they may be used again, and will take as quickly as fresh leeches. The process of disgorging is again practised, and if they are in good condition they may be used a third time, but if not they are taken to the marshes and placed in a reservoir built for the purpose. The reservoir or basin is made of brickwork lined throughout with Roman cement, and filled with water carefully freed from all alkalinity, for alkaline substances seem of all most fatal to them. The bottom is covered over with mud, and many water plants are grown in it. The leeches bury themselves in this earth at the bottom, and remain until their healthy condition is quite restored. A gentle and continuous current of water passes through the reservoir. When they wish to take leeches from it they agitate the water, when the healthy ones rise to the surface, whilst the feebler ones remain at the bottom in the mud. Thus the hospital is constantly supplied with leeches, which fulfil every indication at a very trifling expense(*b*).

(*a*) *Journal de Pharmacie*, vol. x. p. 32, July, 1846.

(*b*) *Medical Gazette*.

PROCEEDINGS OF THE PATHOLOGICAL SOCIETY OF DUBLIN.

THE NERVOUS SYSTEM.

Neuroma.—Mr. Adams said it must be in the recollection of many of the members present that during the winter session, 1844, Mr. Robert W. Smith brought before the Pathological Society the result of two *post mortem* examinations he had made of patients who had died with neuromatous tumours. In these two cases, which were very similar to each other, the neuromatous tumours had been visible in almost every superficial nerve in the body. In each case they amounted to an almost countless number, had existed for many years, and had been always *painless* to the patients. One of the cases brought forward by Mr. Smith, had been, up to the time of the patient's death, under the care of Dr. Hutton, in the Richmond Hospital. Among the numerous tumours the patient had, was one which sprung from the centre of the right vagus nerve, in the middle of the cervical region, which, after ten years' growth, had attained the size of an infant's head; and in the left sciatic nerve of the same patient had arisen a neuromatous tumour, which extended from the lower margin of the glutæus to the popliteal region, and was fully equal in magnitude to the head of this patient, an adult about forty-five years of age. The man died emaciated, with hectic symptoms, and without pain, but the exact source of the exhausting hectic was a matter of conjecture. The second case, the *post mortem* examination of which was reported by Mr. Smith, had been under the care of Dr. Corrigan, in the Whitworth Hospital, where the man died of dysentery; and this case was very similar to the former. In these two instances the tumours were remarkable for their size and number; they were not accompanied by any pain, nor were they the source of any apparent injury to the patient, further than that arising from their weight or bulk(*a*).

Cases of solitary painful Neuroma.—Somewhat different from these *two* remarkable cases of neuroma already brought forward, will be found those I am now about to adduce. While in the former the tumours were to be found springing along the course of almost every nervous trunk in the body of each patient, in the cases I shall presently relate it will be seen that in each individual, only one small tumour appeared in the course of the *only nerve* affected

(*a*) Mr. Robert W. Smith has preparing for the Press a work on neuromatous tumours, which will be accompanied with sixteen large folio lithographic plates of examples of this disease, as large as nature. This work must be, undoubtedly, an expensive one for an individual; but it is to be hoped that the praiseworthy effort to communicate the results of his observations in a way worthy of so novel and so important a subject, may meet with the encouragement that such an enterprise, rare in those days, deserves.

by the disease. Again, in the two former examples the patients did not complain of any pain whatever in the tumours, and sought advice only on account of their size and number, and the growing deformity they produced; while in the latter the tumours will be seen to be comparatively small, and to have been accompanied with pain of the most distressing kind, requiring for the cure of the disease active surgical interference. Although the proper surgical treatment that these solitary neuromatous tumours demand cannot well be a matter of doubt, in consequence of the facts already brought before the profession, still it appears to me that the relation of the three following cases, which have been under my own observation in the Richmond Hospital, may not be considered uninteresting to this Society. In the first case I shall adduce, the *ulnar nerve*, in the second the *posterior tibial*, and in the third the *median*, was the seat of the neuroma.

CASE 1. *Solitary neuromatous Tumour, consisting principally of a Cyst enveloped by the separated Fibrillæ of the Nerve.*—Owen Nolan, aged 40, was admitted into the Richmond Hospital in October, 1836, to be treated for an old stricture and a sarcocoele. He had been a dragoon in the British army, but was now out of the service, and acted as a stable servant. While in hospital he directed my attention to a tumour he had on the internal side of the right arm, a little above the internal condyle of the humerus; it was of an oblong form, about one inch and a half long, and seemed to be an enlargement in the ulnar nerve, which, in the situation of the swelling, seemed to have acquired four times its normal size. This tumour appeared to one feeling it as if it were solid; it was moveable in the transverse direction only. This information was obtained at the expense of some suffering to the patient; he dreaded any one handling the swelling, or anything even touching it, because at the moment of each examination, and even for a quarter of an hour afterwards, a stinging pain was felt all along the course of the branches of the ulnar nerve. The pain was most severely felt in the fleshy portion of the palm, at the inner side, where the ulnar nerve divides and its branches sink deep into the hand, as also along the side of the little finger, and the ulnar edge of the ring finger. It is, however, to be remarked, that the patient never suffered any pain in the tumour except when it was suddenly touched or pressed upon, and from the situation of the disease these were accidents which seldom occurred. Independently of this affection, and the disease Nolan was then under treatment for in the hospital, it is to be remarked that his general health had suffered much while on service in India. He stated that while on duty he had been thrown from his horse, and of this fall he still bore on his person the sad memorial in a dislocation of his left elbow-joint, which had never been reduced. So that, “*jam fractus membra,*” he neither sought for any active treatment to be applied to the removal of the neuroma, nor did we, under the circumstances, think it right to propose any to him. When he was somewhat relieved of the sarcocoele

and stricture he left the Richmond Hospital, and in the latter part of the year 1839 was admitted into the Hardwicke Hospital for fever, of which he died.

The neuroma was found to consist of a swelling about one inch and a half long of the ulnar nerve in that part of its course where it is situated near and above the internal condyle of the humerus. This swelling, when cut into, proved to be a cyst containing a transparent, albuminous fluid; the cyst was formed within the neurilema; the filaments of the nerve, separated from each other, were spread out over the surface of the cyst, and were reunited into a trunk below the tumour.

It is worth observing that the case just related is singularly like that adduced by Cheselden in his *Anatomy* (1773),—the first example of neuroma, according to Wood, ever published,—who thus expresses himself relative to it:

“Cheselden is the first author who, so far as I know, has given a distinct account of the disease. There is a representation in his work of a nervous tumour, of which he gives the following description:—A tumour formed in the centre of the cubital nerve, a little above the bend of the elbow; it was of the *cystic* kind, but contained a transparent jelly. The filaments of the nerve were divided, and ran over its surface. The tumour occasioned a great numbness in all the parts that nerve leads to, and excessive pain upon the least touch or motion. The operation was done but a few weeks since; the pain is entirely ceased; the numbness a little increased; the limb, as yet, not wasted.”—*Anatomy of the Human Body, by W. Cheselden*, tenth edition, p. 256. London, 1773.

CASE 2.—*Case of Neuroma of the posterior Tibial Nerve, situated in that part of its Course where it passes behind the inner Ankle; Excision of the Tumour; Recovery from the Disease.*—In most cases, when the neuroma is solitary, and situated in the course of a nerve, where it is exposed to injury or pressure, such as that even of the ordinary dress, the pain that is excited in it by the most trivial causes is intolerable to the patient, who becomes anxious to undergo any operation to be relieved of the disease. Such was the case of a patient who was under the care of the late Dr. M'Dowel in the Richmond Hospital. He had a neuroma about the size of a Spanish nut, in the course of the posterior tibial nerve, where it passes behind the inner ankle. Such were the pains the patient endured in his daily work as a labourer, that he could not earn his bread. A consultation was held on the case at the Richmond Hospital, at which I attended, and it was advised that the neuroma should be cut out, dividing the nerve across, both above and below the tumour; which was done accordingly. The tumour removed in this case was of a fibro-cellular structure, surrounded by a dense covering. The operation was completely successful in relieving the man of his suffering, and the motions of the foot were not permanently impaired by the effect of the complete division across of the posterior tibial nerve. Although this case occurred many years ago,

and is quoted from memory, it is well remembered by Dr. Hutton, Mr. Smith, and myself.

CASE 3.—*Case of Neuroma produced by a Wound inflicted on the median Nerve near the Wrist: Excision of the Neuroma, followed by Relief from Pain; subsequent Restoration of the Feeling and Use of the Hand.*—The last case I have to adduce is that of Catherine Mulvany, aged 27, a widow, the mother of four children. About two years ago she had the misfortune to fall against a window, and to receive from the broken glass pane a transverse wound, about one inch above the wrist joint, across this part of the front of the fore-arm. The *median nerve* was cut across in the wound, as well as part of some of the tendons, and it was five or six months before the wound was perfectly cicatrized. Subsequently to this a tumour formed in the course of the *median* nerve, just underneath the central part of the transverse cicatrix. This tumour, when she presented herself at the Richmond Hospital in September last, was about the size of a small almond; it was hard to the touch, and the source to her, to use her own language, of “awful suffering,” and completely prevented her supporting herself or family. When at her work, if anything, even her dress, accidentally touched the tumour, severe pains shot down to the hollow of the palm of her hand, and upwards to her shoulder. She also complained much of *numbness* and *coldness* of all the parts of the hand supplied by the *median nerve*. As in the case of Nolan, who had neuroma in the ulnar nerve, the little finger and *ulnar* side of the ring finger were the seat of the peculiar sensations extending down from the neuro-matous swellings, so in this case the peculiar sensations were felt principally in the parts supplied by the median nerve. Hence she complained that there was always a sense of coldness and numbness along the *radial* side of the ring finger, both sides of the middle and index fingers, and thumb, while the ulnar side of the ring finger and both sides of the little finger were in a natural state; in a word, these parts supplied by the ulnar nerve, as to temperature and feeling, were quite unaffected; no pain radiated along the course of the branches of any nerve but those of the median. In this case a neuromatous tumour as large as an almond, already mentioned, and which is exactly represented by the cast presented to the Society, was the source of all her suffering. The proper surgical treatment of her case obviously was, to cut out the neuroma. To effect this involved the necessity of cutting across and removing a portion of the median nerve with the neuroma. We did not hesitate to advise her to have the operation at once performed, to which she very gladly assented, as she found her sufferings daily to become aggravated. On Wednesday, the 9th of September, in the presence of the Richmond Hospital class, I removed the neuroma which I now exhibit.

Operation.—An incision more than one inch long was made over the tumour, in the direction of the longitudinal axis of the fore-arm; the fascia was thus exposed, and a director passed underneath

it, and this membrane divided on it; the upper extremity of the tumour was soon arrived at, and the point of entrance into it of the median nerve discovered. A probe was passed under the nerve here, and this last cut across; a hook was next passed firmly into the tumour, and the surrounding parts dissected from it, until the lowest extremity of the tumour was reached, and the median nerve, where it made its exit from the lowest point of the neuroma, was cut across; and thus was one inch of the median nerve, including the tumour, completely removed. The operation, as it may be well conceived, caused very great pain to the patient. However, the result has been most satisfactory; the wound healed in the course of a week, and her statement this morning at the hospital was to the effect that still some remaining feeling of coldness and numbness existed in all those parts supplied by the extreme branches of the median nerve, but we learned that there is now no morbid sensibility in the seat of the cicatrix where the neuroma existed—no starting or stinging pain darting down to the palm or upwards. In short, with great joy, she stated she was enabled to earn her bread, and to support by her labour, though with difficulty these times, her children.

Dissection.—Upon examination of the portion of the median nerve now removed, which was about one inch and a quarter, including the neuroma, it was noticed that the nerve, as to colour, consistency, and structure, seemed, above and below the tumour, to be quite normal. The oblong tumour itself had spread over it here and there some slender fibrillæ of the median nerve. A section of it, made longitudinally, presented a hard, white, homogeneous mass, of the same consistency throughout, having no distinct cyst, but presenting an appearance as if the neurilema of the nerve had been continued over it.

In this case, the surgeon had no choice between the operations which might have been proposed, either that of cutting out the portion of the median nerve including the neuroma, or that of dissecting out the tumour from the surrounding branches of this nerve as they passed outside or through the neuroma. The recollection that the disease in this case had originated from a wound which had penetrated deep into the centre of the median nerve, would have convinced us, had we any hesitation in the matter, that we had no other alternative than that of cutting completely across the nerve, and removing the neuroma.

Catherine Mulvany, the subject of the foregoing operation applied at the Richmond Hospital a few days ago, March 6, 1848, seeking advice for a sprain she had received, which circumstance afforded us an opportunity of inquiring as to the result of the operation for the neuroma which had been performed fifteen months previously: she stated that she was now enabled to earn her bread as well as ever she did. She had no pain either in the cicatrix which marked the situation of the neuroma, nor in the course of any of the branches of the median nerve. She had only one observation to make, showing that any

difference from the normal state of the hand now existed, namely, a remarkable coldness of the fingers supplied by the branches of the median nerve.

This sense of coldness was not only felt by herself, but the lowness of the temperature was also more appreciable by any one who examined the hand. This circumstance, however, in no way interfered with the uses of the hand, which for all practical purposes were completely restored.

Surgical Treatment of solitary Neuromatous Tumours.—Although we might well imagine that the proper surgical treatment which these *solitary* neuromatous tumours require, was a point of practice long since settled, and that, therefore, the cases just adduced, have lost much of the interest which should otherwise attach to them, yet I am of opinion that the multiplication of facts proving the safety and success with which painful neuromatous tumours may be excised cannot be considered altogether useless, since MM. Louis, Odier, and Warren state(*a*), that they have deemed it necessary to amputate limbs affected with this disease. Indeed, if we were not acquainted with the historical evidence of the advantage of excision of neuromatous tumours, and the cutting the nerve from which they spring, or had not witnessed results so happy as those which occurred in the two last cases I have adduced, we could scarcely credit that the operation of completely dividing across such a nerve as the median, or posterior tibial (necessary for the removal of the neuroma), should be followed only by some little temporary inconvenience.

It has now been fully ascertained, by the result of positive experiment on man, that neither loss of sensibility nor of power of voluntary motion ultimately remains, after cutting completely across such nerves as the ulnar, median, musculo-cutaneous, and posterior tibial, and perhaps some others. By such results, we should, I imagine, be encouraged, in the surgical treatment of neuromatous tumours, such as the foregoing, to prefer the cutting across of the nerve, and the excision of the neuroma from which it springs, to any other mode of operation.

We learn, however, that some surgeons have in particular instances considered it more expedient to endeavour to disentangle the neuroma from the branches of the nerve which surround it, than to resort to the complete excision above alluded to.

We read that Velpeau(*b*), in a case of a very large neuroma of the sciatic nerve, safely disengaged the tumour from the lash of branches, or fibrillæ, of which this great nerve is made up. He adds, that Chelius of Heidelberg adopted the same plan with similar success. Upon the whole, from what I have seen of those painful neuromatous tumours, I would say the *rule* should be to cut across the nerve above the neuroma, and then remove the tumour; but there may be cases in which it may be practicable, and, perhaps,

(*a*) Vide Velpeau, *Leçons Orales*, tom. iii.

(*b*) *Leçons Orales*, loc. cit.

prudent, without sacrificing the nervous trunk by division, to dissect out the tumour from the nervous fibrillæ which surround it.—
January 16, 1847.

Acute Cerebro-Spinal Arachnitis ; Effusion into the Subarachnoid Tissue.—Dr. Mayne presented specimens and drawings of two cases of acute arachnitis, in both of which the symptoms, during life, had been nearly alike; both were very rapid in their course, were resistant to treatment, and the morbid appearances discovered after death were very similar: both occurred in the South Dublin Union.

The first case was that of a boy, aged four years, who had been in good health up to the 24th of March; on that day he was running about with the other children, eat his dinner, and about bedtime complained of pain in the stomach, vomited, and was very restless during the night; he was very thirsty, and vomited whatever he drank; continued to complain of pain in the belly. Next morning (25th March) he was seen by Dr. Mayne, who observed that his countenance presented a tetanic expression; his head was firmly drawn back, and it resisted the efforts of Dr. Mayne to bring it forward; the lower extremities were stiff, although semiflexed; he had lost the power of voluntary motion, was unable to stand up, and could not preserve the erect position when he was lifted up and placed on his feet; the epigastrium was tender to pressure; the abdomen was not swollen or rigid; there was neither headach, congestion of the conjunctiva, strabismus, nor heat of the scalp; the pulse was 120, and the sense of pain was all referred to the abdomen. The diagnosis was difficult, and the treatment consequently somewhat temporizing; the head was shaved, and calomel given in small doses. On the next day (26th) the pulse had fallen to 60; he had been moaning through the night, and had raved; the vomiting still continued, and he was unable now to give any account of his sensations. On the day following he was still worse; he had been convulsed during the night so violently that the nurse, being unable to hold him, had at last strapped him down to the bed. The convulsions recurred frequently, the extremities became cold, and he died on the fourth day of the attack. On examining the body, the signs of acute arachnitis were observed within the cranium; over the hemispheres the serous membrane was generally dry, with some degree of clamminess, while lymph of a greenish colour had been effused in the subarachnoid tissue on the surface of the brain, and was very obvious along the sulci between the convolutions. This effusion was so copious at the base of the brain that all the cerebral nerves were covered by it, and it extended also into the vertebral canal, the spinal cord from one end to the other being enveloped by it. There had been no effusion into the ventricles.

The second case occurred three days after the first: the subject, a boy aged nine years, was attacked after dinner on the 30th of March, with similar symptoms to those observed in the preceding case; thus, he had pain in the stomach, vomited, his head was retracted, the

muscles of the neck were rigid, and the countenance had the tetanic expression, but the extremities were not so stiff as in the other case. Dr. Mayne immediately recognised this as another instance of the same disease, and he thinks these symptoms may almost be looked on as pathognomonic. This case, like the other, obstinately resisted treatment. Dr. Mayne, in the hope of overcoming the disease, directed venesection from the arm, and afterwards from the jugular vein; the bleeding was pushed so far as nearly to produce syncope. In addition to this, the head was shaved, leeches were applied over the mastoid process, and calomel administered every second hour. On the second day of the attack, convulsions set in; the left side was that affected by them. On the third day the pulse was imperceptible at the wrists, and the fæces were passed involuntarily; the calomel had, by this time, affected the gums. On the fourth day he died. The appearances observed in the examination of the body were similar to those of the other case, but more strongly marked. The arachnoid, not only within the cranium, but also throughout the vertebral canal, exhibited the effects of inflammation. On the upper surface of the cerebrum, the serous membrane was dry, and through it could be seen, in tortuous lines, the lymph filling up the sulci. On the upper part of the cerebellum, a yellowish green lymph had been effused; a similar effusion was very abundant at the base of the brain. Within the vertebral canal there was effusion of the same character, which was so copious in the lower part as to conceal the cauda equina. This lymph admitted of being scraped off the subjacent surface, and it was then discovered that the pia mater was not congested, nor was the substance of the medulla spinalis affected by inflammation or ramollissement.—*February 20, 1847.*

Disease of the Dura Mater and softening of the Brain.—Dr. Mayne exhibited the recent parts in this case. The patient was a man aged 45, of intemperate habits, and by occupation a process-server. In May last he received a severe beating while in the discharge of his duty, several violent blows being inflicted on the head; but he was able to return to his business in a few days. He then resumed his intemperate habits, and at the end of a fortnight was seized with an epileptic convulsion, and during the subsequent month he had two similar attacks; after the third seizure he was found to be hemiplegic upon the right side, and his mental powers were impaired.

In September he came under Dr. Mayne's care. He was then unable to express his ideas; he knew the words proper to convey his meaning, but he said precisely the opposite to that which he intended. He was painfully conscious of these involuntary errors, and when that which he wished to say was expressed for him, he seemed most grateful, and shed tears at the consciousness of his own imbecility.

At length he was seized with another epileptic fit, after which he remained much more stupid; he evinced a distaste for food, his discharges passed involuntarily, and he gradually became nearly

comatose. Under the influence of mercury he improved for a fortnight, but then, after another epileptic paroxysm, he became comatose, and died. The organs of sense remained throughout perfectly unimpaired.

Autopsy.—The arachnoid covering the convexity of the hemispheres was found to be thickened and opaque; there was also sub-arachnoid serous effusion. Upon attempting to raise the brain out of the cranium, the inferior surface of the left middle lobe was found to be adherent to the dura mater throughout the greater part of the extent of the middle fossa at the base of the skull. The dura mater in this situation was covered with a morbid growth which presented all the characters of carcinoma, and the corresponding portion of the brain was softened.

MEDICAL MISCELLANY.

Case of foreign Body in the Air Passages; Expulsion by the Rima after four Months; Question of Operation; New Instrument. By J. M. O'FERRALL, M. D., F. R. C. S., First Medical Adviser to St. Vincent's Hospital.

JOHN MERIGAN, six years of age, was admitted into St. Vincent's Hospital on the 3rd of August, 1847, on account of cough and difficult breathing. The following history was given of his complaint:

It was stated by his mother that, four months before admission, the child, then in good health, was engaged in play with his comrades, and was suddenly tickled by one of them, while he held some pebbles in his mouth. A severe and alarming cough instantly took place, and the child screamed with pain. After a short time he became more tranquil, and then said that he had three pebbles in his mouth, and that he had swallowed one of them when tickled.

From this period his breathing was remarked to be laborious, and he was subject to occasional fits of coughing, during which he appeared to suffer great pain, and on a few occasions spat some blood. His appetite had undergone very little change, and yet he had lost flesh.

The chest was carefully examined on admission into hospital, and the following phenomena recorded:

The muscular coverings of the thorax were attenuated. Its symmetry was nearly perfect; but although mensuration did not establish an appreciable difference, the eye could detect a slight prominence of the right half of that cavity anteriorly. The respiratory movements of this side gave to the hand the impression of a degree of expansion greater than that which occurred in the opposite or left side during inspiration.

Percussion elicited a sound normally clear from both sides of the chest, anteriorly and posteriorly. The resiliency on percussion ap-

peared in a very slight degree to be less marked about the middle of the left side of the chest posteriorly.

Auscultation of the left chest revealed a moderate vesicular murmur, unmixed with rales, in the infraclavicular region. In the mammary region a few mucous and sibilous rales were perceptible. The locality and sounds of the heart were normal. Laterally, in the axillary region, the bronchitic rales were more constant. Posteriorly the left chest afforded no abnormal sounds above; in the middle and inferior portions, however, all the varieties of sibilous, sonorous, and mucous rales prevailed in a remarkable degree.

Auscultation of the right chest, anteriorly and posteriorly, discovered no trace whatever of bronchitic rales. The vesicular murmur in this chest was pure but exaggerated, and afforded a good example of compensatory respiration.

The general appearance of the child indicated impeded function in the respiratory apparatus. The colour of his face was slightly but distinctly sub-livid; the expression was anxious and uneasy; the *alæ nasi* dilated with every breath. The nails of his fingers were slightly purplish, but were well-formed, and did not at all resemble the appearance called clubnail. He had no sweats, nor had any chills been observed in the evening.

From those signs it appeared evident,

1st,—That there was a bronchitis in the left lung, which did not implicate its upper portion, and which had not extended to the lung of the right side.

2ndly,—That the respiratory function in the left lung, although not altogether impeded, was modified in a degree which called for the compensatory action of the lung of the right side.

And it was probable,

1st,—That the bronchitis was not idiopathic or ordinary bronchitis, since it was limited to one side, and to a portion only of that side.

2ndly,—That this bronchitis was not of tubercular origin, since it did not manifest itself in the apex of the lung; and further, because it was not accompanied by any of the symptoms belonging to phthisis.

There was, therefore, a localized irritation, for which it was impossible, on known pathological principles, to account, without reference to the history of the affection given by the friends of the patient; and I could not hesitate to conclude that a foreign body was lodged in the left bronchus, without quite blocking up the tube. All the physical evidence was in favour of the opinion, that the left tube contained the foreign body, although this inference implied a more obscure, because exceptional case.

The character of the cough was peculiar and not easily described. The instant the paroxysm commenced, the sound of the cough was confused by his screaming with pain, during which tears streamed from his eyes. When questioned as to the pain, he pointed to the

middle of the sternum. All attempts at auscultation in this state were defeated by the piercing cries of the child, and by the agitation of his frame. The paroxysm generally lasted about two minutes, and left him much exhausted. At its termination he occasionally spat a little mucus tinged with blood.

A few days after the child entered the Hospital Dr. Gueneau de Mussy visited the wards ;—it was the day before the invasion of the fever which threatened the life of this intelligent physician. I read for him my notes of the phenomena and my conclusions : in these he concurred, after a most minute examination of the patient.

The question of operation, now necessarily raised, appeared to me to depend on the following considerations:—Presuming the presence of a foreign body in the air passages, and supposing the trachea already opened, was there good reason to expect that it could be caused to pass through the artificial aperture, even when the body of the patient was inverted? The result of several operations on record, and especially of the remarkable case of Mr. Brunell, prove that a sufficient opening may be made in the trachea,—that the patient may be inverted, and that the foreign body may drop towards the glottis, eluding all attempts to procure its extraction. In the case of Mr. Brunel it will be remembered that although the artificial opening in the trachea was maintained for a considerable time, and that during this period several attempts were made to effect the removal of the foreign body by inverting the patient, yet it eventually made its escape through the rima, by which it had entered.

Considering, therefore, that an ineffectual operation might be followed by the bronchitis not unusual after tracheotomy, and that a general bronchitis would be most probably fatal in a case where one lung was already engaged in the performance of compensatory duty,—and that all this might occur without the least relief to the original cause of distress,—I believed it to be my duty to devise, if possible, in the first instance, some mode of preventing the failure of the operation as a means of removing the foreign body.

I proposed to have an instrument made which should be introduced through the artificial opening, and which, when the patient was inverted, should catch the pebble as it fell towards the rima. I gave the sketch to a cutler, who undertook to realize it. It was to be constructed of wire, in order to allow the air to pass freely through it. This little basket, attached to a handle, was, when in the trachea, to be made to open into two portions, like a bivalve shell, and was to be closed again when it had caught the foreign substance, by means of a ring slid along the handle. Aided by this contrivance, I was prepared to give the patient the chance of recovery by operation ; although, after such a lapse of time as four months, and with such evidence of long-continued local irritation, there was reason to apprehend that a fresh bronchitis would endanger his life.

At this juncture I happened to mention the case to Dr. Stokes, as an interesting problem in diagnosis. He came to see it, and after

a deliberate and careful examination of the patient, he joined me in the conclusion already stated, and he believed the operation to be justifiable.

While the construction of the basket forceps was in progress, however, the problem was suddenly solved by the expulsion of the pebble during a fit of coughing. The child was seized in the usual manner, and screamed violently; the next instant he put his hand to his mouth, and cried out in delight, "The stone! the stone!" while he handed the pebble to the attendant. From this moment he never suffered from cough, and his countenance and manner became unusually cheerful.

The pebble is limestone, highly polished. Its long diameter measures half an inch, and its short diameter three-eighths of an inch; all its angles and edges are rounded off. Its shape is prismatic, so that a section through its short diameter would present three sides, one corresponding with the short diameter, and the two others raised upon that, as a base of the triangle. It would be superfluous to describe the form of this stone minutely, except as it affords an explanation of the fact already noticed, namely, that the bronchial tube was not completely occluded, and that air was heard to pass, though feebly, into the smaller branches.

The day following the expulsion of the stone the chest was again examined. The phenomena were very little altered, except that the respiratory murmur was louder than before on the left side. The bronchial rales still remained.

A succession of small blisters were directed to follow a very small cupping, and this was succeeded by a mild mercurial course. The health of the child improved; the frequency of the breathing diminished, and he had no cough; but some rales were audible on the left side, while the respiration of the right lung was a little exaggerated. Under these circumstances he was sent to the country.

I shall conclude the relation of this important case by a few brief remarks on the diagnosis and management of analogous states. It would, perhaps, be presumptuous to say, that, in the present state of our knowledge, a correct diagnosis can always be made in such a case, independent of the history of the accident. I am inclined, however, to hope that the record of the present case may lead us, in doubtful circumstances, to revise an incorrect history, or to elicit by inquiry facts of which no notice had been taken. If, for instance, the physical signs revealed the existence of a circumscribed bronchitis in a portion of the lung where tubercle is not usually deposited in its early stage,—and if a compensatory respiration in the opposite lung give evidence of impediment or modification of that function in the affected side,—and if to these signs were added a symptom so remarkable as the convulsive and painful cough now described,—there would be grounds for suspecting the presence of some *unusual, obstructive, and moveable* cause for the phenomena in question, and the history of the case would at once become the subject for more minute inquiry.

But, supposing the diagnosis to be established, our solicitude does not end here. The course to be pursued is a serious practical question. On the one hand we know that the foreign body may, at any moment, be expelled through the rima by a natural effort; and, on the other, experience teaches us that the most carefully performed operation may be followed by a fatal bronchitis, especially in cases where the area of the respiratory apparatus has already been reduced. But a still more serious difficulty is at hand. The operation may be performed, the dangers of a bronchitis actually incurred,—and yet the removal of the foreign body may not be accomplished. This has actually occurred in practice on several occasions; and in some of them the offending body has, after all, been expelled by a natural effort through the rima.

Believing, however, that the rule of practice will, under all the circumstances, be to extract the foreign body as early as possible, and before organic changes are effected in the lung, I think the attention of the profession should be seriously directed to the means of insuring a successful result when the operation is performed, and with this view I recommend the use of the basket forceps already described.

Cases in Midwifery. By T. PUREFOY, M. D., CloghJordan.

No. 1. *Cicatrices of Vagina; Protracted and difficult Labour; Hysteritis; Sloughing of Vagina; and Death.*—S. S., a shoemaker's wife, aged 40, has had one child about nine years ago; her labour was severe and protracted, and finally terminated by the aid of the crotchet, when the child was taken away piecemeal. Recovery was very slow, in consequence of violent inflammation of the vagina and soft parts, terminating in sloughing, and the establishment of a fistulous opening into the bladder, so that permanent incontinence of urine was the consequence of this unfortunate confinement. At this period the husband of this poor woman went to America, and did not return until about twelve months before her second confinement. On the night of the 6th of October, 1847, the waters came away, after the continuance of trifling labour-pains for four or five days previously. At the first visit on the 6th inst., at 2 P. M., upon making an examination, the vagina was found to be very short and unyielding, and surrounded at its upper portion by a thin, sharp, rigid, and nearly circular cicatrix, forming a sort of ring stricture of this part, and thus completely preventing any satisfactory examination of the os uteri being made.

By patient and persevering efforts the first finger was passed through the very contracted opening left in this rigid structure, when it came into contact with a soft, pulpy mass, found subsequently to be the cord, but first supposed to be the placenta; the movements of the finger, however, were so restrained that the os could not be detected.

A large quantity of liquor amnii, mixed with clots of blood, had

come away, but no unfavourable symptoms then existed. An opiate draught was now given to quiet trifling ineffective pains, with directions to keep the patient cool and quiet. On the 7th strong labour-pains occurred, with long intervals between. An oil draught was administered as the bowels were confined.

9 P. M. The cord may now be reached by the finger with some difficulty, but cannot, by any means, be retained above the strictured portion of vagina. By pushing aside the cord, an extremity may be just touched;—the elbow is supposed to present;—but the os uteri cannot be examined. A mixture of tartar emetic, containing half a grain in each dose, and repeated every second hour, the effects of the medicine being carefully observed, was now prescribed, with a view to promote dilatation of the os uteri and soft parts.

8th. Two fingers may now be passed through the stricture with difficulty; the unpleasant sensation produced by the pressure of the parts upon the fingers being such as would result from having them tightly bound round by a small cord. Upon continuing the examination, the narrowing of the vagina is found to be occasioned by an intimate, strong adhesion between the uterus and upper portion of the vagina, while no trace of the os uteri or its neck can be found. The fingers, once passed beyond this circular contraction of the vagina, immediately enter into the uterine cavity, when the membranous structure by which the vagina is obstructed may be examined between the finger and thumb, and found to consist of a strong, unyielding tissue, very thin at the edge, and much thicker and more unyielding at its attachment with the soft parts. It was now ascertained that the side of the chest, together with the fore-arm of the child, presents. A patient attempt was again made to promote dilatation of the strictured part by the aid of the fingers, but it was found wholly unavailing, in consequence of the very painful pressure thus made upon the fingers by the thin, sharp edges of the opening. At this critical moment, I had the advantage of the opinion and advice of Dr. M'Arthur, of Shinrone; when it was agreed that we should leave the patient to the natural efforts for some hours longer, since it was impossible either to turn or to extract the child without dividing the stricture; and, as no bad symptoms had yet arisen, it was considered prudent to defer any operation for the present. The tartar emetic mixture to be continued.

9 P. M. Pains have been strong and forcing through the day. The rigid parts are softer and more yielding. Artificial dilatation was now again persevered in for more than an hour, Dr. M'Arthur and myself relieving each other occasionally during this time. I now found it possible to pass my hand (an unusually small one) through the strictured opening thus dilated, and, by a painful effort, succeeded in bringing down one foot. The turning of the child, and completing the delivery, occupied us, very anxiously, for about an hour, as there was much difficulty experienced in removing the child with safety to the mother; fortunately, indeed,

for her, it was only seven and a half months old, as, had it been full-grown, the difficulties and dangers must have been greatly increased. The infant was undergoing the first stage of putrefaction.

Two days after delivery decided symptoms of inflammation of the uterus and vagina set in, indicated by a rigor, symptomatic fever, enlargement of the uterus, with great tenderness on pressure, but unattended by any severe pain; heat, dryness, and soreness of vagina and soft parts, with suppression of the lochia; urgent thirst, restlessness, and marked depression of spirits, with despondency; the features sallow, cheeks slightly flushed, and countenance at once expressive of acute suffering, anxiety, and dejection of mind. As leeching and warm bathing were remedies not to be obtained, the treatment consisted in one general bleeding, blistering of the abdomen in the advanced stage of the disease, and mercury to affect the gums, together with a suitable diet, and soothing fomentations to the soft parts.

This treatment, however, afforded merely temporary relief, and although when the gums were decidedly affected by mercury, we had some hope of ultimate recovery, yet the patient finally sank at the expiration of a month, worn out by repeated rigors, hectic fever, sloughing, and suppuration of the vagina, with obstinate diarrhœa, and attacks of bilious vomiting.

No. 2. *Cicatrices and Contraction of Vagina; Premature Labour; Recovery.*—Mrs. S., a farmer's wife who has had two children, and suffered much during her last confinement, about five years since, when it was found necessary to complete a tedious and painful labour by instrumental aid, being now pregnant a third time, incautiously underwent much fatigue during the seventh month, which brought on slight pelvic pains accompanied by a discharge of the liquor amnii. She was first visited on the 7th November, at 9 A. M., when she was found in a state of high febrile excitement, the result of fruitless pains, and loss of rest. Pulse 124; respiration 36; abdomen small; infant scarcely ascertainable by examination with the hand externally; but the foetal heart is distinctly audible by the aid of the stethoscope. The bowels are regular, and the urine is passed without difficulty. The labour pains are few, weak, and ineffective; interrupted by long intervals of uterine inaction, when the patient enjoys sound sleep. The os uteri is situated very high up in the pelvis, and turned quite to the right side, dilated so as to admit the finger, when it is found to be very thin, and yielding anteriorly, whilst its posterior lip is thick, firm, and unyielding, being bound down to the upper and back part of the vagina by strong adhesions, which render the retraction or dilatation of this part nearly impracticable. The examination of the os uteri occasions acute pain and suffering, with a tendency to faint. It is found impossible to ascertain the nature of the presentation. An opiate was now ordered, with strict directions to keep the patient cool and quiet.

During the next twenty-four hours the poor woman underwent

much suffering, every returning pain occasioning her to scream out in agony. However, the dilatation of the os uteri went on progressively through all; and although a very high degree of irritative fever continued, it was not thought advisable to interfere further than to aid dilatation occasionally by one or two fingers gently passed round and within the os uteri. On the evening of the 8th inst., the breech was found to present, and about 12 P. M. on the same night, a seven-month still-born child was born, much to the delight of the poor sufferer. The foetal heart could not be heard for some hours previous to delivery. This patient recovered without a single bad symptom occurring.

These cases are of some practical interest, as they are of rather rare occurrence, and in a very especial manner require the exercise of patience, gentleness, and of a matured and sound judgment, upon the part of the medical attendant. As no *fixed rules* can be laid down for the treatment of such cases, so a greatly increased responsibility devolves upon every individual who may have the management of them, as, unless where a consultation can be had, he must act solely upon the dictates of his own judgment and experience. The principle upon which the treatment of the first case was conducted was simple: to observe the natural progress of the labour, and to afford such aid as the circumstances of the patient might require during its course. The case was truly perplexing, and beset by difficulties on all sides, whether we consider the very unyielding nature of the soft parts, the unfavourable position of the child, or the great difficulty in turning at so early a period of pregnancy as the seventh or even the eighth month. However unfavourable the result, yet I think that the plan of treatment pursued was the best under existing circumstances. Where there was a choice between incising the strictured portion of the vagina, and dilating it artificially by the aid of the fingers and other auxiliary means, it appeared the safer mode of proceeding to dilate the parts; since, undoubtedly, there existed a very intimate union between the lower portion, or neck of the uterus, and the upper part of the vagina. Neither the os, nor neck of the uterus could be traced by the fingers; so, perhaps, the neck might have been separated, or destroyed in her first confinement, thus occasioning the adhesions and narrowing of the vagina. If the obstruction was produced in this way, an incision must have wounded the uterus, and so, perhaps, given rise to very troublesome, or even fatal hæmorrhage.

As to the operation of turning, when found practicable without doing any violence to the patient, it was preferred, as a less objectionable proceeding, and one attended with less risk, than the use of instruments.

In the second case the adhesions were of a much less formidable character than in the proceeding one, as the lower lip of the uterus alone was incorporated with the vaginal adhesions. The presentation was also more favourable, and doubtless served to promote the dilatation of the os uteri. The progress of the case proved

that incision of the cicatrices in the vagina was not necessary ; for, although the dilatation of the os uteri and vagina was very slow, and exquisitely painful, yet it was progressive, and terminated happily for the mother.

OBITUARY.

WHEN we commenced the memoirs and biographical notices of those distinguished physicians and surgeons who have practised in this country, we had hoped to have pursued this pleasing duty with but little interruption, and that but few occasions would occur to offer any interference with the plan we had laid down for carrying out this department of our periodical. We had procured materials for memoirs, and had had portraits engraved, of some of the great fathers of the Irish school of medicine of the last century; but the number of recent deaths among the members of the medical profession here, have, we regret to say, claimed that space in our pages which the former should have occupied. Since the 1st of January last upwards of thirty of our professional brethren have died; and, while the pestilence still thins our ranks, carrying off in a few days the young and strong,—leaving in its track the helpless orphan and the widow unprovided for,—the aged and the weak have also, in greater numbers than usual, sunk quietly into the grave. It really seems useless now to complain; above *five hundred* Irish medical practitioners have died within five years; and a large number of these contracted fatal diseases in the heroic discharge of public professional duties. With but one or two exceptions, the Government has heard the cry of their widows and orphans in vain. English sympathy, however, has not been wanting, nor English benevolence withheld from us. The London Ladies Relief Association, of whose generosity we gave an account in our last Number, has since added, through the instrumentality of His Grace the Archbishop of Dublin, to their former donation, the sum of 300*l.*, which the Committee has also distributed, part to the Medical Fund, and the rest among the widows and twenty-seven orphans of seven deceased medical practitioners. Subscriptions have also, in some instances, been set on foot with tolerable effect, and we understand the Medical Benevolent Fund is now in a position to allocate a portion of its income for the purposes originally intended. We anxiously look forward to the forthcoming annual meeting of this body, and we trust that the profession generally will no longer treat this valuable Institution with apathy, now that the conditions are attained which will, in future, render the Fund really useful.

There is scarcely a death which occurs among the profession in Ireland, to which a memoir might not be attached, did our space permit. The following deceased brothers, however, from their peculiar position, their labours, or their connexion with our School, more especially claim attention.

ALEXANDER JACKSON, M. D.,

Formerly State Physician.

DR. ALEXANDER JACKSON was a native of the county Tyrone; and having been educated at a public school in Dungannon, he commenced the study of medicine at an early age in Edinburgh, where he was the contemporary and friend of the late Sir James Macintosh, who was also at that period a student of medicine. Dr. Jackson passed a few years of his professional life in the town of Lurgan, and afterwards settled as a practitioner in Dublin in the year 1795, where he soon after became attached to the hospital in connexion with the House of Industry; from this office he was transferred to the situation of physician to the Richmond Lunatic Asylum in 1814; and he retained the appointment to that establishment from its opening till the day of his death.

The public and the profession are much indebted to Dr. Jackson for his exertions in the formation of this asylum, as it was chiefly in consequence of his representation to the Government of the necessity for such an institution that its establishment was determined on. Previously to its erection, the only receptacle for pauper lunatics in this city, with the exception of a portion of Swift's Hospital, was the House of Industry; but the part of that establishment then appropriated to the insane was so limited in extent, and so defective in arrangement, as to preclude the adoption of any systematic plan for their moral and medical treatment. Dr. Jackson gave a great deal of consideration to the formation of the new asylum, and undertook a journey to England in order to visit similar establishments in that country, with the view of adopting such plans as appeared best calculated for an institution intended not simply for the safe-keeping of the insane, but for their rational treatment and cure. The Richmond Asylum was the first institution of the kind, in this country, constructed for the classification of the insane according to their several states of disease; for this purpose it affords ample convenience: and although it may be deficient in some improvements which have been introduced into more recent establishments, yet at the time of its erection it was far in advance of all existing asylums. Dr. Jackson entertained a favourite idea on the subject of the treatment of lunatics, which is explained in the following extract of a letter published by him in 1809:

“My mind has long indulged itself in the contemplation of a system of Asylums where the relation and dependency of the separate parts might be made subservient to the recovery of the patient; but I fear the plan is impracticable at present. Every physician knows the effect of change of scene and a quick succession of external objects in appeasing the distempered mind of the maniac, and eventually introducing new trains of ideas. My plan would be to combine the city and provincial Asylums into one comprehensive system: that it should rest with the discretion and judgment of the physicians to remove such patients as were likely to be benefited

by change of scene. I do not know whether the subject was ever taken in this view; but I am satisfied every ingenuous professional man will at once be convinced of its efficacy and practicability.”(a) This plan of Dr. Jackson’s is well worthy of serious consideration now, when a number of district Asylums exist under one systematic mode of management which would make its adoption perfectly practicable.

Dr. Jackson filled the office of State Physician jointly with the late Dr. Cleghorn for several years, and after the death of that gentleman, solely, until the abolition of the situation in the year 1831; the system of English centralization, so long pursued with regard to this country, being then particularly extended to the medical profession, when the offices of State Physician, State Surgeon, and Surgeon-General, the only places of honour or emolument which we possessed, were done away with. The policy was, to say the least of it, unwise.

Dr. Jackson enjoyed a very extensive and lucrative practice for a long period, and for several years before his demise he was possessed of an ample fortune, entirely the fruits of his professional labours. He had no family, and has frequently told some of his intimate friends that the proper disposal of his fortune was a subject of more anxious consideration with him than its acquisition. Besides a number of charitable bequests of minor importance, he bequeathed the sum of £8000 to found an Asylum near Aughnacloy, the place of his birth, for the maintenance of a number of indigent persons of respectable character, but without religious distinction.

Dr. Jackson died on the 19th March, 1848, in the eighty-first year of his age. During the greater part of his adult life he was subject to gout, of which he had frequent attacks, often combined with bronchitis, in a more or less acute form. This latter affection he was seldom quite free from in a chronic state. In addition to these diseases, during sixteen or seventeen years of the latter period of his life, he suffered from severe attacks of gall-stone, attended with jaundice. It was under a combination of such affections that he ultimately sunk, having more than once survived similar attacks, contrary to the prognosis of some of the most acute and experienced of his medical friends. It is deserving of attention, both in a pathological and practical point of view, that he never had gouty concretions nor dropsical effusions, and that he had habitually a very copious secretion of urine, by which, most probably, large quantities of excrementitious matters were carried off.

His official situation in the Richmond Lunatic Asylum has been conferred by the Government on his assistant, Dr. Mollan, and that gentleman’s place has been filled by Dr. Tuohill.

(a) A few Observations on the State of the Lunatic Asylum of the House of Industry in Dublin. March 27, 1809.

PERCIVAL HUNT, M. D., F. K. & Q. C. P.,

Professor of Materia Medica to the Apothecaries' Hall of Ireland, Physician in Ordinary to Sir Patrick Dun's Hospital.

WE lament to have to record the death of Dr. Percival Hunt, which took place on the 4th of March, 1848. In him the School of Dublin has lost one of its most useful supporters, and humanity one of its truest ornaments.

This gentleman was probably not much known outside the profession in Dublin, except in the remembrance of his numerous pupils. Of a respectable family, and possessing a competency, he sought but little for general practice, and his nature was too diffident and retiring to permit of his presenting himself to the world as an author. But there are many who will bear us out in the assertion, that as a teacher and an hospital physician there were few equal to him in merit.

He was born on the 27th of May, 1802, at Clermont in the county of Wicklow. His father, the late John Hunt, Esq., continued to reside there until the death of his wife in 1808, when he removed to Dublin for the education of his children. Percival, who was his youngest son, entered College in 1818, under the present Bishop of Cork; he obtained the second place at entrance, which in Trinity College is an evidence of superior ability, and he distinguished himself much during his collegiate career. He subsequently commenced the study of medicine, and very soon showed a predilection for the departments of chemistry and materia medica. He became a private pupil of Dr. Apjohn, the present Professor of Chemistry to the Royal College of Surgeons, at that time Lecturer at the Park-street School of Medicine; and he also spent much of his time in the laboratory of the late John Moore, Esq., an apothecary of this city, who was also a chemist of no mean endowments. In the year 1826 he took out the degrees of Bachelor of Arts and also Bachelor of Medicine, and became a licentiate of the College of Physicians. He then went to London, and obtained a dressership at the Middlesex Hospital. While in the English metropolis he attended the anatomical and physiological courses delivered by Sir Charles Bell at the Great Windmill-street School; and he also studied under Dr. Forbes and Mr. Guthrie, at the Westminster Eye Infirmary. In the latter part of 1827 Dr. Hunt visited Paris, and attended the great hospitals in that city, and in 1828 he went to Berlin, chiefly for the purpose of examining the pretensions of homœopathy, at that time creating much attention. Soon convinced of the futility of the pretensions of the proposed system of therapeutics, he returned to Dublin in the course of the year 1828.

Dr. Hunt was now an accomplished physician. He had possessed opportunities rarely attainable, and he had improved them with remarkable industry. He was soon appointed one of the medical

attendants to the Meath-street Sick Poor Institution; and shortly afterwards, in 1831, in conjunction with Dr. Corrigan, physician to Jervis-street Hospital. During the two following winters Drs. Hunt and Corrigan delivered lectures on the Practice of Medicine in the theatre of the hospital; and in 1833 they united with some other gentlemen to establish a medical school in Digges-street. In this new school Dr. Hunt selected the department of *Materia Medica*, to which he had always been attached, and shortly so established his reputation as a teacher, that in 1836 he was elected by the Apothecaries' Hall of Ireland their Professor on this subject.

Methodical and particular in all his habits, Dr. Hunt was peculiarly so as a lecturer. He conned the various periodicals, repeated the experiments detailed in them, took accurate notes of the results, and thus kept the most exact time with the onward progress of discovery. We have the manuscript notes of his lectures at this instant before us; we find them lined and interlined, blotted and altered, with different coloured inks, according as new facts became discovered; from year to year the result of experiments before his classes are noted, the failures marked, with their probable causes appended. We have examined his museum; nothing could be more neat, exact, and regular. His style as a lecturer was lucid, systematic, and philosophical. His lectures on therapeutics were particularly valuable. And why was this? Because he was an industrious and careful hospital physician.

In 1841 he was appointed physician extraordinary to Sir Patrick Dun's Hospital. He attended both it and Jervis-street Hospital until 1843, when he resigned the latter. In 1846 he became physician in ordinary to Sir Patrick Dun's Hospital. Into his hospital attendance he carried the same punctuality and accuracy that distinguished him in all his relations, and to the end of life he was a sincere student.

Such men as Dr. Hunt, who are practical without being overburdened with practice,—learned, laborious, and earnest,—are invaluable in a great medical school like that of Dublin. As society is constituted in these countries, the utility of these men is increased by their possessing a rank and competency of pecuniary means calculated to confer respectability on the profession of medical teaching. In these days of mere trading, such examples of a pure love of science are of great value in maintaining the dignity of our profession.

Dr. Hunt was a thorough gentleman. As a man, he fulfilled the various duties of social life in a manner which gained him the affection and respect of all; he was emphatically a man of honour, one whose word could at all times be depended on; and although extremely particular about money matters, his charity was generous but discriminating.

For several years his health had been delicate. During the autumn and commencing winter of last year, symptoms of heart and

liver disease began to display themselves with gradually increasing severity; and he died, as we have already mentioned, early in March. During the last few months of his life he was engaged in assisting Dr. Apjohn in preparing a new Dublin Phamacopœia by the appointment of the College of Physicians.

Dr. Hunt wrote very little. Although possessing ample materials, he had a great repugnance to publishing. In the sixth volume of our former Series he published a brief account of a case of Encephalic bruit de soufflet (1835).

PERCIVAL BANKS, M. D., L. R. C. S. I.

PERCIVAL BANKS, the oldest licentiate of the Irish College of Surgeons, died upon the 9th of March last, in the eighty-fourth year of his age. The family of Banks emigrated to this country from Aylesbury, in Kent, and settled originally in the neighbourhood of Ardee. An offset of this family located in Clare; and, about the middle of the last century, we find Percival Banks, the father of the subject of this memoir, a physician of eminence in Ennis. His son, who was the youngest of twenty-four children, was brought up to the same profession, after the manner of the hereditary ancient physicians of this country, and acquired from his father the first rudiments of his art. The School of Dublin was, as far as the teaching department was concerned, then in its infancy. On a future occasion we intend to give some account of the origin and progress of the Surgical School, and the Irish College of Surgeons; but for the present it will suffice to say, that sixty years ago the chief teachers of anatomy in this city were Dr. Cleghorn, the elder, in the University, and Mr. Halahan, in the old College of Surgeons, which at that time stood in Mercer-street. All our students, who wished to gain a thorough knowledge of the profession, particularly in the surgical department, spent some time, generally a year or two, on the Continent, chiefly in Paris or Montpellier; for the mere possession of diplomas was not then, as, in many instances, it now is, the chief aim of the young practitioner.

Mr. Banks went to Paris in 1785, where he remained two years, studying under Fourcroy, Piron, and other eminent teachers of that period. In 1787 he returned to England, and was immediately appointed by the Commissioners of the Navy, under a warrant from the "Master, Governors, and Commonalty of Surgeons of London," as surgeon's first mate, on board the Racehorse sloop of war.

In 1784 the first charter was granted to the Irish College of Surgeons, and on the 7th of May, 1789, Mr. Banks received his letters testimonial, William Dease being President, and Messrs. Obre, Bowes, Croker King, M'Evoy, and Philip Woodroffe, Censors. Some time after Mr. Banks returned to Ireland he translated several volumes

of the Memoirs of the Royal Academy of Surgery in Paris^(a). He also took out a degree in medicine, but in what university we have not been able to discover, probably in Paris or Rheims. He served for several years in the army as surgeon to the 9th Foot, the Cardiganshire and the county Clare regiments of Militia; and he had charge of a large number of troops on their return from the disastrous Walcheren expedition. Mr. Banks was afterwards appointed surgeon to the county Clare Infirmary, and enjoyed considerable repute as a practitioner in Ennis and the surrounding neighbourhood for many years. He was also one of the physicians to the Ennis Fever Hospital. Before there was a College of Surgeons in Dublin, it was necessary, in order to qualify for the situation of surgeon to a county infirmary, to be examined by a board composed of the medical staff of Dr. Steevens' and Mercer's Hospitals; and as the Act of Parliament which required this remained in force for many years after the creation of the Irish College of Surgeons, Mr. Banks was examined by the Board, in order to qualify him for such an appointment, on the 24th September, 1789^(b). The examiners on this occasion were George Stewart, then Surgeon-General, and Messrs. Hume, Boyton, Jebb, Obre, Gibbine, Taylor, Woodroffe, and L'Estrange. Dr. Banks had given up practice for many years, and died at the residence of his son, Dr. John Banks, in this city.

RICHARD STRONG SARGENT, M. D., F. K. & Q. C. P.,

Lecturer on the Practice of Physic, &c.

DR. SARGENT was born in Dublin in 1805; he entered the University in 1822, and graduated in 1827. He commenced the study of medicine in 1825, in the Richmond School, and was clinical clerk to the late Dr. John Crampton, in 1829, in Sir Patrick Dun's Hospital, and shortly afterwards became a dresser in the Richmond Hospital under Dr. M'Dowell. In 1832 Dr. Sargent was appointed by the Government to the temporary Cholera Hospital at Granard, in the county of Longford; to the duties of which, as well as the general care of persons seized with that fatal epidemic in the surrounding neighbourhood, he devoted all his time and energy. In 1833 he was appointed physician to the Royal Free Hospital in London, a situation he held for that and the following year. This post of promise, and extensive field for practical investigation, he was induced to resign by a lucrative offer in the West Indies, where he was intrusted

(a) Translations of some of the Memoirs of the ci-devant Royal Academy of Surgery in Paris, within a short period of the Revolution, with plates, by Percival Banks, M. D., Licentiate of the Royal College of Surgeons in Ireland, Surgeon to the County of Clare Infirmary, &c., and dedicated, by permission, to the Members and Licentiates of the Royal College of Surgeons in Ireland.

(b) On this subject see note to "The Second Part of the Metropolis." Dublin, Barlow. 1806. p. 74.

with the charge of one of the large estate hospitals in the island of St. Lucia. While there, he suffered several times from the fever endemic in the country; and his health being much impaired, he returned to Ireland, and settled as a practitioner in this city in 1836; shortly afterwards he joined the College of Physicians, and in 1842 was elected a Fellow of that body. He was also a graduate in medicine of the Universities of Dublin and Cambridge, and for several years filled the office of secretary to the medical section of the British Association.

Dr. Sargent was one of the physicians to that valuable establishment, the Sick Poor Institution in Meath-street. This he resigned on being elected one of the physicians to the Whitworth Hospital, Drumcondra, in 1843, the labours of which he continued to perform till the date of his last illness. He was also a lecturer on the practice of Physic in the original Peter-street School of Medicine, in this city, for several years.

Upon the erection of the fever sheds in connexion with the Dublin North Union Workhouse last summer, he was appointed one of the medical attendants. Here he laboured early and late, having the care of *one hundred patients*, at the ordinary rate of Government remuneration.

It is the recorded opinion of eminent men and those long experienced in the management of fever, that from forty to fifty cases are the most a practitioner can treat effectively in the day, giving to himself and his patients a fair chance for their lives. This question we have no desire here to discuss. Dr. Sargent fell a victim to his exertions. Upon the morning of the 11th of January last he went to the sheds, having previously received a severe wetting, under the depressing influence of which he nevertheless conscientiously performed his allotted task. That day he contracted typhus, and died on the 27th of the month, in the forty-second year of his age, leaving a widow and seven children.

Dr. Sargent was a good classical scholar, a man of most extensive reading, of general literary acquirements, and greatly admired by a large circle of friends. He published some papers in the periodicals, and in the twentieth volume of the former series of this Journal he wrote an article, displaying considerable research, "On the Condition of Medical Science in Egypt under its different Dynasties," (1841).

MARTIN TUOMY, M. D., H. F. K. & Q. C. P.,

Formerly Professor of the Practice of Medicine to the School of Physic in Ireland.

DR. MARTIN TUOMY was born in the year 1764, at the residence of his father, Brandon Well, county Kerry, and, when very young, entered the University of Dublin as a Sizar. He subsequently obtained a scholarship, and his college course generally was one of pro-

gressive success, as he almost invariably carried off the premium or certificate in his class. The original Historical Society was then in full vigour, and there any young man of knowledge, ability, and eloquence in particular, had an opportunity for displaying his talents. It was there Mr. Tuomy first attracted attention, being both an accurate historian, and an able and ready debater. Although a Roman Catholic, he obtained a Scholarship (in 1788), and was one of the first of that religious persuasion who graduated as such in Trinity College on the repeal of the Statute in 1794(*a*). He afterwards took out the degree of Doctor of Medicine in Edinburgh. On his return to Dublin he married the daughter of Thomas Burroughs, Esq., Master in Chancery, and grand-daughter of Sir Henry Cavendish.

Dr. Tuomy took out the license, and was subsequently elected an honorary Fellow of the College of Physicians. At this period Roman Catholics were ineligible to the professorships of the School of Physic; on the rescinding of that law, however, Dr. Tuomy was elected to the chair of Physic, an appointment he held for sixteen years, having been twice re-elected. Dr. Tuomy was a very popular lecturer in his day, having a most retentive memory, possessing a vast store of general and classical, as well as professional information, and being gifted with considerable powers of eloquence. In right of his office he was one of the attending physicians to Sir Patrick Dun's Hospital, and was also connected with the Dublin General Dispensary, where an abundant field for practice was opened up to him. The result of this extensive acquaintance with the diseases of the lower orders was his "*Treatise on the principal Diseases of Dublin*"(*b*). He also

(*a*) The circumstances attending Mr. Tuomy's retention of his scholarship requires explanation. According to the original Charter, the Statutes, and the Act of Parliament, no one but a member of the Established Church could graduate in the University of Dublin, or hold any office in it whatever. Occasionally, however, Roman Catholics obtained scholarships; and, partly from laxity of rule and discipline, and partly from a feeling of good-nature on the part of the Board, they were permitted to retain this reward of their talent and industry without inquiry. Indeed we believe the sacramental test was not enforced until after this period, and until 1794 no record was kept of any man's religion at entrance. But although the few Roman Catholics that then, from time to time, obtained scholarship, were permitted to enjoy all the collegiate privileges, the franchise, which was then confined to Fellows and Scholars, was denied them. At the time of the celebrated contested election in Trinity College, in 1790, between Dr. Arthur Browne, afterwards Prime Sergeant, and the Hon. Francis Hely Hutchinson, afterwards Lord Donoughmore, and Dr. Lawrence Parsons, afterwards Lord Rosse, Mr. Tuomy was earnestly solicited to conform, in order to qualify him to vote, and even to try to vote without conforming, as other Roman Catholic scholars were about to do, but he honourably refused. Mr. Tuomy was twice examined at considerable length before the Committee of the House of Commons. See "*A full and accurate Report of the Proceedings in the Case of the Borough of Trinity College, Dublin, as heard before a Select Committee of the House of Commons, A. D. 1791,*" &c. Dublin, 1791. Mills, page 80, and 268. See also, "*A Constitutional History of the University of Dublin,* &c., by Denis Caulfield Heron, A. B." Dublin, 1848. M'Glashan. Second Edition, p. 84.

(*b*) Dublin, printed by William Folds, 1810. 8vo. pp. 399.

published a book on Maculated Typhus Fever. These were very valuable works, particularly at a period when our professional writings were remarkably rare; but the length to which our Obituary has already extended in the present Number prevents our making any observations on their nature and character, to which, however, we hope to return on some future day, and describe them in connexion with the medical literature of Ireland. Dr. Tuomy likewise published translations of Euripedes, Hippolitus, and Iphigenia, which evince classical research and literary ability of the highest order.

Dr. Tuomy soon arrived at a very high degree of eminence in his profession, and not only enjoyed a large share of public confidence, but was on terms of the most friendly intimacy with the most distinguished men of the day in this city, as his social qualities, as well as his acknowledged talents, secured him a large circle of admirers. He retired from practice and public life many years ago; and died early in January last, at the residence of his son, Dr. Tuomy of Carlow, at the advanced age of 84; but in the full possession of all his mental faculties.

THOMAS TAYLOR, M. D., F. K. & Q. C. P.,

Joint Author with Hooker of the *Muscologia Britannica*, &c.

WE have also to record the death of Dr. Thomas Taylor, one of the most distinguished botanists which this country ever produced. He died at his residence, Dunkerron, Kenmare, early in February last, of fever contracted from his attendance among the poor. He was the eldest son of Colonel Taylor, a distinguished officer in the Indian army. He graduated both in Arts and Medicine in the University of Dublin; he was afterwards elected a Fellow of the King and Queen's College of Physicians, and was, during his residence in this city, physician in ordinary to Sir Patrick Dun's Hospital. He early exhibited a marked predilection for the study of botany, and in his excursions into the hills of Wicklow with his friends, the late Dr. Whitley Stokes and Mr. Mackay, many years ago (1813), he soon evinced those talents which so much distinguished his subsequent brilliant career. When thirty years of age, he had himself taught to draw, and his delineations of the non-flowering plants are, we believe, some of the finest extant. He was the joint author with Sir William Jackson Hooker of the *Muscologia Britannica*, and he also contributed the articles Mosses and Lichens, in Mackay's *Flora Hibernica*, from the preface to which work we make the following extract: "The second, and not least valuable part of the work, contains the orders Musci, Hepaticæ, and Lichenes, by Dr. Taylor, the well-known coadjutor of Sir William J. Hooker, in the *Muscologia Britannica*, who, of all the botanists in Ireland, was best qualified for the task. It may be seen that he has added a new genus

(Hydoplila) in the order Hepaticæ; and in the order Lichens a good many hitherto undescribed species, six of which appear in the Addenda." He also gave to science the details of the collection (principally Irish Fungi) of the late John Templeton of Belfast, one of the earliest, as well as the most distinguished and original, of Irish zoologists.

Sir W. J. Hooker, in recording his death in a recent Number of the London Journal of Botany, says: "Few naturalists had studied more deeply, and few more successfully, as his various writings testify, the cryptogamic plants of all parts of the globe, especially the *Musci*, *Hepaticæ*, and *Lichens*; and the recent additions to his Herbarium, many of which we ourselves had the happiness of contributing, would have given him occupation for many years to come, in the determining and describing them. During the existence of the Royal Cork Scientific Institution^(a), Dr. Taylor was appointed Lecturer on Botany and Natural History there; but, on the breaking up of that establishment, he never after engaged in any public employment, and his circumstances did not require that he should devote much time to medical practice, a profession for which he was destined. He thus was enabled to make the study of botany the main business of his life, and few men devoted themselves to it with greater ardour. Besides his valuable contributions to the *Muscologia Britannica*, he wrote an admirable memoir on the *Marchantiæ*, illustrated with many figures, which appeared in the seventeenth volume of the Transactions of the Linnæan Society; he contributed largely to the cryptogamic portion of Dr. Hooker's *Flora Antarctica*; and the late volumes of the present Journal bear testimony to his deep knowledge of the *Lichens* and *Hepaticæ*: nor is our portfolio without materials for our future numbers, which we lament will thus constitute posthumous memoirs. Dr. Taylor possessed a mind well stored in various branches of science and literature, while his gentle and amiable manner rendered him a great favourite with all who had the happiness of his acquaintance; and we well know that during the distressful times of the south of Ireland, in the winter of last year, his medical knowledge, and his purse too, were alike employed in bettering the condition of his poor neighbours.

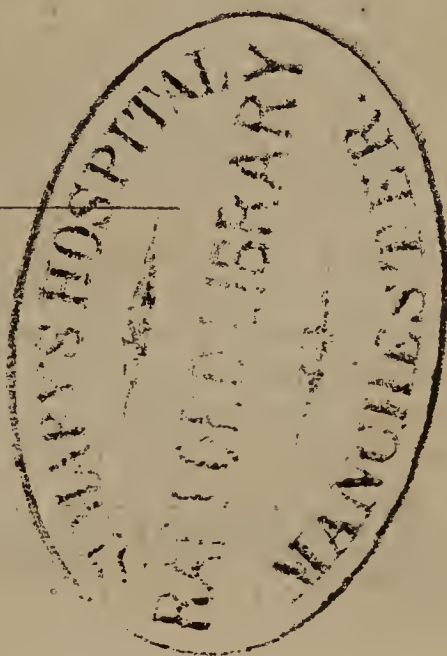
"Dr. Taylor's Herbarium, eminently rich in Cryptogamiæ, his library, and his microscopes, will be, by-and-by, offered for public sale, or disposed of by private contract." We sincerely hope that some of our public institutions, the University or the Royal Dublin Society, will not permit this valuable collection to leave the country.

(a) The withdrawal of the grant from the Cork Institution was another effort at provincialising but too successfully adopted with regard to this country. We have been told that since the destruction of this establishment the number of southern Students and Fellows in Trinity College has decreased. Is this true?

He was an Honorary Member of the Royal Irish Academy, and from the Proceedings of that body we copy the following just tribute to his merits, published in the Annual Report of the Council:

“Ardently attached to botany from very early years, and endowed with an acute eye, and keenly-discriminative powers of mind, he soon became known as an observer; and to his researches the Irish Flora is indebted for the detection of a large number of new species. These researches continued with unabated zeal through life. In 1818, in conjunction with Sir William Hooker, he published the ‘*Muscologia Britannica*,’ a work which, for accuracy and clearness, has seldom been surpassed, and which is still the best guide to a knowledge of the British mosses. On the withdrawal of the parliamentary grant from the Royal Cork Institution, he retired to an estate in the county Kerry, near Kenmare, where he continued to reside for the remainder of his life, employing himself in country business, and devoting to botany his leisure time. As a magistrate, he twice received the marked thanks of the Government. In the last season of awful misery, his purse and his medical skill were freely employed in alleviating the sufferings of his poorer neighbours; and it was *fever*, caught in the discharge of his duties at the workhouse of Kenmare, to which he was physician, which terminated his useful life at an age very little exceeding 60. Strong in frame, and remarkably active, he might have looked forward to a more lengthened career.

“Dr. Taylor was in correspondence with the most celebrated botanists of England, France, Germany, and America, by whom he was universally esteemed. ‘He possessed,’ in the language of an early friend, ‘a mind well stored in the various branches of science and literature, while his gentle and amiable manners rendered him a great favourite with all who had the happiness of his acquaintance.’ His loss is deplored by a wide circle of scientific and personal friends. He received the well-merited honour which has connected his name with this Academy in the year 1816.”



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